THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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Conducted by J. BUEL, of Albany.

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☞ The published volumes are for sale at the subscription price, or, if bound, the cost of binding added. The bound volumes may be also had of our Agents in the principal cities.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

THE LATE JESSE BUEL.

Since the last publication of the Cultivator, death has abruptly terminated the existence of its well-known and respected Editor. He sank, after a brief struggle, beneath a severe illness, which seized him while absent from his home, and engaged in the pursuit of his favorite occupation. He breathed his last, at Danbury, Connecticut, on the 6th ultimo, in the sixty-second year of his age. This sudden bereavement has called forth the sympathy of the entire community; and while others are expressing their sense of the common loss, it seems fitting that the paper, which he first established, and in which he delighted to the last, should furnish some few mementos of his useful life.

JESSE BUEL was born at Coventry, Conn. on the 4th of January, 1778. In early boyhood he removed with his parents to Rutland, Vermont, where he became an apprentice to the printing business, in the office of Mr. Lyons. Thence he went, at the age of 18 to the city of New-York, remained there during the prevalence of the yellow fever, bought out his time, and having formed a partnership with Mr. Moffit, at Troy, he there established the Budget. In 1801, he married, moved to Poughkeepsie, and commenced the Guardian, afterwards called the Political Barometer. In 1803, he came to Kingston and established the Plebeian. In 1813, he settled permanently in this city, and commenced the Albany Argus. He continued to edit that paper and to discharge the duties of State Printer, until 1821, when he retired to his farm in the vicinity of this city. Subsequently to this period, he represented the county for several years in the Assembly of the State; received, in 1836, the support of the whig party of New-York, for the office of Governor; and was, at the time of his death, a Regent of the University. In these several stations, he manifested a soundness of judgment and a purity of purpose, that won for him the respect of all parties, and the reputation of an eminently honest man.

But these incidental interruptions were never suffered to divert his attention, for any length of time, from the great object of his interest, the advancement of agricultural science. From the period of his retirement to his farm, this favorite pursuit engrossed his time and thoughts. To this he devoted the energies of an active and well disciplined mind, and that others might share in the fruits of his study and experience, he established in 1833, the monthly publication which has met with so much favor from the public. Success crowned these praise-worthy and philanthropic exertions. The subject of agriculture began to attract more general and enlightened attention. Sister societies sprang up in all directions, zealous in this good work, and among the first acts of their official existence, was usually the election of JESSE BUEL as an honorary member. His fame was soon wafted across the Atlantic, and there, too, similar distinctions were showered upon the man whose life and labors had been attended with such practical benefits to his country and to the world. Thus in 1821, he was elected an honorary member of the Massachusetts Agricultural Society; in 1829, of the Horticultural Society of that state; in 1830, of the Monroe Horticultural Society at Rochester, and of the State Society of Statistiques Universelles at Paris; in 1831, of the Charleston Horticultural Society, in South-Carolina; in 1832, of the Hampshire, Franklin and Hampden Society, in Massachusetts, and of the Hamilton County Agricultural Society, at Cincinnati; in 1833, of the Tennessee Agricultural and Horticultural Societies; in 1834, of the Horticultural Society of the District of Columbia; in 1838, of the Philadelphia Society of Agriculture; and in 1839, of the Albemarle Agricultural Society. In 1824, he was chosen a corresponding member of the London and New-York Horticultural Societies; in 1833, of the Lower Canada Agricultural Society; in 1836, of the Royal and Central Society of Agriculture, at Paris; and in 1838, president of the Horticultural Society of the Valley of the Hudson.

This brief enumeration affords the best evidence of his devotion to the interests of agriculture. Of the consideration in which his counsels and instruction were held, at home and abroad, the rapid increase in the circulation of the Cultivator is satisfactory proof. His own practical skill was fully attested, in the conversion of the barren sand hills on which he settled, into a garden spot of unequalled beauty and fertility. These congenial pursuits brought with them that peace of mind, serenity of temper and kindness of disposition, which made him in so eminent a degree, the firm friend, the kind neighbor, the indulgent parent, and the devoted christian.

But from the scene of his useful labors—from all these tender ties, he has suddenly passed away. Returning springs may give fresh bloom and fragrant blossoms to the plants in his favorite nursery, but the skilful hand and the watchful eye which cherished their earliest growth, are now the tenants of the tomb. The clods of the valley cover his last remains; but though no earthly summer can rekindle, with its genial warmth, their vital spark, a heavenly season shall ere long impart to them a new principle of existence, and the flower which Time destroyed, shall flourish in unfading beauty throughout Eternity.

☞ To our Patrons.

Owing to the great loss sustained by the death of the late Editor and Conductor of the Cultivator, and the general supposition among its supporters and contributors, that the paper would necessarily be discontinued, it is deemed proper to inform our subscribers, that it will be continued through the present year, under the direction of JESSE BUEL, assisted by several practical gentlemen. He hopes, by unremitted exertions, to have it sustain the high standing which it has heretofore acquired, under the superintendence of his deceased father.

If circumstances should prove favorable, the Cultivator will be continued as usual, according to the terms given in the prospectus for Vol. VII. which has already circulated widely. Should it be discontinued at the end of the present year, due notice will be given in one of our last numbers.

We would therefore tender our thanks to the agents and subscribers of the Cultivator, and request their aid in procuring subscriptions and forwarding names as soon as possible, should no notice appear in our next of its discontinuance.

☞ Notice.

All persons indebted to the estate of the late JESSE BUEL deceased, are requested to make immediate payment to the executors of said estate.

CHARLES BUEL,
JESSE BUEL,
AMOS DEAN,
} *Executors.*

Albany, October 23, 1839.

☞ To our Correspondents.

Permit us to tender to our numerous correspondents, both old and new, our thanks, for the many useful and instructive communications heretofore received; and we would respectfully invite their co-operation in the future pages of this journal, in any thing that is new or may be useful to the practical farmer and gardener.

☞ Back Volumes.

We would remark, to those who are not in possession of our back volumes, that but few of the first four volumes remain on hand, and those who may wish them, can be supplied by applying soon, either stitched or bound, at the usual price.

Comparison of the Temperature of August and September, 1838 and 1839,

Deduced from observations made at the Albany Academy.

	August		September	
	1838.	1839.	1838.	1839.
Temperature of 1st half month	72.76	69.30	63.35	66.07
Temperature of 2d half month,	68.28	69.90	61.04	58.57
Temperature of the month,	70.52	69.60	62.19	62.32
Highest degree,	90.	88.	83.	86.
Lowest degree,	50.	47.	43.	37.
Monthly range,	40.	41.	40.	49.
No. clear days,	23½	20	20	17
No. cloudy days,	7½	11	10	13
No. of days rain fell,	8	8	7	8
Rain gauge, inches,	4.91	1.24	4.46	2.75
WINDS—North, (days,)	1½	4½	5½	3½
Northeast,	2½	½	7	1½
East,	.....	1½	1	½
Southeast,	1½	1	2	2
South,	8	9½	6	12
Southwest,	4	2	4½	2½
West,	4½	3	½	3
Northwest,	9	9	3½	5

Albany Horticultural Society.

The annual meeting of the Albany Horticultural Society was held on the 18th Sept. at the large room in the *Atheneum Building*. The committee respectfully report the following contributions to the exhibition:

From Walter Elder, gardener for Dr. Wendell, Albany.—15 sorts potatoes, China corn, boquets of flowers, white and red sugar beets, mangel wurtzel, red and white onions, French pumpkin, weight 96 lbs., Spanish pumpkin, weight 90 lbs., kohl rabi, white egg plant, yellow and red tomatoes, 20 sorts hearts' ease.

Philip Henry, Albany—White solid celery, German greens, kohl rabi, case knife pole beans.

Andrew E. Brown, Albany—Large pumpkins, celery, yellow tomatoes.

G. C. Thorburn, New-York—A case containing choice varieties of dahlias.

James Wilson, Albany—Dahlias, green-house plants, varieties of hearts' ease.

J. Buel & Co. Albany Nursery—A beautiful variety of dahlias and other flowers, interwoven in the form of a Castle of Flora: also, a great variety of boquets of flowers.

Theophilus Rossole, Albany—White solid celery, very fine, butter squashes, turnips, blood beets.

Daniel Payne, Albany—Large Roman cabbage, weight 20 lbs., Spanish pumpkins, cocoa nut squashes, ruta bagas, potatoes, cucumbers, variegated corn.

Theodore Allen, Hyde-Park—Salsify or vegetable oyster, purple egg plant and red onions.

Chas. Gilchrist, Albany—Drum-head cabbages, weight 21 lbs. each, egg plant, pears, apples, parsnips, carrots, beets, black cluster grapes.

John Faley, Albany—Large pumpkin, ruta baga, potatoes.

William Buel, Albany—Onions, potatoes, beets, mangel wurtzel, carrots, parsnips, winter squashes, egg plant, ruta bagas, dahlias, peaches, pears, plums, apples.

John W. Smith, Albany—Potatoes and parsnips.

Mr. Benson, Hudson—Sweet water, Isabella grapes, and tomatoes.

Joseph Hall, Arbor Hill, Albany—Pears and quinces.

P. Ashton, Albany—Onions, beets, Lima pole beans, carrots, purple egg plant.

Charles Buel, Albany—Fine tomatoes.

John H. Loucks, Albany—Large pumpkin, weight 110 lbs., cocoa nut squash.

Gen. Dix, Albany—2 varieties pears.

Tho's Ingram—2 varieties grapes.

A. P. Heartt, Troy—Dahlias and egg plants.

Prof. J. W. Jackson, Schenectady—Boquets of flowers and a fine assortment of dahlias.

Thomas Turner, Albany—Plums, grapes, pears, Rohan potatoes, yellow and red tomatoes, beets, cabbages, carrots, 4 varieties corn, ruta baga, largest French pumpkin, weight 112 lbs., celery, squashes, onions, dahlias, and a lot of flowers.

Robert Neely, Albany—Isabella grapes and plums.

Dr. B. P. Staats, Albany—Egg plums.

J. Whalen, Albany—White egg plants, tomatoes, nasturtium in pickle, grapes, dahlias and other flowers.

John B. Hudson, Albany—Purple brocoli, fine carrots, egg plants, long and turnip beets.

Jacob Mayer, Albany—1 large pumpkin.

John E. Lovett, Albany—Magnum bonum and egg plums.

Thomas Dowling, Albany—3 sorts seedling potatoes.

Edward Fortune, Albany—Onions, large water-melons, tomatoes, beets, mangel wurtzel, parsnips, carrots, 7 year pumpkins, crook-neck winter squashes.

Judge Woodworth, Hyde-Park—Onions, carrots, sugar beets, extra large; mangel wurtzel, very large size; purple egg plant, Lima beans, Rohan potatoes, turnips, seedling Victoria potatoes.

C. N. Bement, Albany—Superior white carrots, (a new variety,) long blood beets, mangel wurtzel, tomatoes.

Wm. Bement, Albany—Squashes, parsnips, onions, carrots, mangel wurtzel, very fine.

The committee appointed to award premiums on *Vegetables*, having examined them throughout, and being highly gratified in the extensive show displayed on this occasion, would remark, that many to whom premiums were not awarded, were deserving of them, although the premium list excluded them. They, therefore have awarded the premiums as follows:

Largest pumpkin, weight 112 lbs. to Thos. Turner,	$2 00
Next largest, 110 lbs. to J. H. Loucks,	1 00
Two largest heads cabbages, to C. Gilchrist,	1 00
Two next do. do. to Daniel Payne,	1 00
Best variety winter squashes, to Edward Fortune,	2 00
Best tomatoes, to Charles Buel,	1 00
Best fruit of the egg plant, to A. P. Heartt,	1 00
Best variety winter potatoes, W. Elder,	2 00
Two best heads brocoli, to J. P. Hudson,	2 00
Six do. do. celery, Theophilus Rossole,	1 00
One dozen turnips, for family use, from Judge Woodworth, of Hyde-Park, Dutchess county,	1 00
One doz. best carrots, for family use, P. Ashton,	1 00
One doz. do. do. for stock, to C. Gilchrist,	1 00
One doz. best ruta baga, for stock, to J. Faley,	1 00
Half doz. best sugar beets, for stock, to Judge Woodworth, of Hyde-Park,	1 00
Half doz. best mangel wurtzel, to C. N. Bement,	1 00
Half doz. best beets for family use, to W. Buel,	1 00
Half doz. best parsnips, for family use, to J. W. Smith,	1 00
Half doz. best salsify or vegetable oyster, to Theo. Allen, of Hyde-Park,	1 00
One doz. best onions, to Edward Fortune,	1 00
Half peck best Lima pole beans, to Judge Woodworth,	1 00
Half doz. white carrots, (disc. pm.) to C. N. Bement,	1 00
Half doz. yellow tomatoes, (disc. pm.) to T. Booth,	1 00
Three varieties seedling potatoes, (disc. pm.) to Thos. Dowling,	2 00
German greens, (disc. pm.) to P. Henry,	1 00
Kohl rabi, (disc. pm.) to P. Henry,	1 00
Two Spanish pumpkins, (disc. pm.) to Daniel Payne,	1 00

ANDREW E. BROWN,
CHA'S BUEL,
JESSE BUEL, Jr.

The committee appointed to award premiums on *Fruits*, would award the following premiums:

Prem. 1, 2 largest bunches grapes, to J. Whalen,	$5 00
" 2, Next largest bunches Isabella grapes, to R. Neely,	3 00
" 3, For white Sweet Water grapes, to Mr. Benson, of Hudson,	2 00
" 4, 1st on pears, to C. Gilchrist,	5 00
" 5, 2d on pears, to Gen. Dix,	3 00
" 6, 1 doz. best variety apples, to Wm. Buel,	5 00
" 7, 1 doz. next best variety apples, to Cha's Gilchrist,	3 00
" 8, 1 doz. best peaches to Wm. Buel,	2 00
" 9, 1 doz. best quinces, to Joseph Hall,	1 00
" 10, 4 water-melons, large size, to E. Fortune,	3 00

ISAAC DENNISTON,
R. M. MEIGS,
A. P. HEARTT.

The committee appointed to decide the premiums on *Flowers, &c.* would report that they have awarded the premiums as follows:

1st premium for 25 best dahlias to G. C. Thorburn, New-York,	$20 00
2d prem. for 25 next best do. to James Wilson,	15 00
3d prem. for 25 next best do. to J. Buel & Co.	10 00
4th prem. for 25 next best do. to Prof. Jackson,	5 00
5th prem. for 25 next best do. to A. P. Heartt, Troy,	3 00
1st prem. for best design for a centre ornament of a table of flowers, to J. Buel & Co.	5 00
2d prem. for do. do. to Wm. Buel,	3 00
1st premium for best boquet of flowers, to W. Elder,	2 00
Premium for greatest variety boquet flowers, to J. Buel & Co.	3 00
Premium for best specimen green house plants, to James Wilson,	2 00
Premium for greatest assortment of plants in pots, to J. Whalen,	2 00
Premium for greatest assortment of hearts' ease, to W. Elder,	1 00

ALEXANDER ROSS,
WALTER ELDER,
MARTIN LOWE.

W. THORBURN, *Recording Secretary.*

Acknowledgements.

☞ We acknowledge the receipt of a small box of the Scuppernong Grape, from David White, Esq. of Newby's Bridge, N. C. in fine condition. Fruit very large and highly perfumed.

Also, some fine Quinces, being the product of two small stems, from Lemuel Bassett, Esq. Ovid, Seneca county, N. Y.

CORRESPONDENCE.

On Sea-Weed.

Wheat-Sheaf Farm, Staten Island, Sept. 16, 1839.

J. BUEL, Esq.—Dear Sir—In your last number, you expressed a wish "to receive a communication from some person familiar with the subject, as to the best mode of preparing sea-weed, and of applying it to the soil." I will not say that I am myself as familiar as I may become on further experience, with the *best* mode; though I have read much of it, and, as attentively as I could, have noticed the practical coincidence of what I have read with the result of my own, and the usual neighboring modes of using it; and I believe I have read essentially all that can be found published, as the result of practice or science, in relation to it.

On turning to page 135 of your same number, among the very excellent observations of Henry R. Madden, Esq. of Edinburgh, we find much of what may be said of it. The sea-weeds of the coasts of Scotland and Ireland are, no doubt, in most respects, similar to ours. Those of our coast, as well as theirs, fall within the general botanical descriptions of *Algæ*, *Fuci*, and *Confervæ*. The similitudes may be traced distinctly in Loudon, where the forms of the entire plants are given.

Though beneficial to a sandy soil of good composition, they have been found, I believe, mostly so to a clay, and well calculated to divide its tenacious or adhesive qualities. They are here usually ploughed in with ordinary manures, after they have become dry and short, through the limited fermentation spontaneously occurring in the sea-weed heap; or after they have been taken thence, more or less dried, used as barnyard or way litter, and thus become incorporated with the manure. On such applications, a free use of the sand of the seashore is also made, intermixed with it, if intended for a clay soil, for several reasons—on account of its saline humidity, and the known attraction for moisture of stony or silicious substances once wet with salt water; of the superior influence of sea sand (in which of course no clay is to be found) above ordinary sand, in amending the composition of a clay soil; on account of the frequent admixture with beach sand, of the granulations or particles of minute sea shells, which the frictional action of the sea on its stones breaks up, and intermixes with it; and also of the operation of the sand on the vegetable substances brought into contact with it by the tread of cattle, and which the acute angles of the sandy pebbles cut and divide, thus accelerating the division of the vegetable matter, and hastening its preparation as a manure.

Sea-weed is also in some instances wind-dried, with little or no fermentation, and thus used for littering horses and cattle, thence finding its way to the manure heap. This practice is well enough *with such surplus* as may be gathered over and above all the farming supply that can be *ploughed in green*, which has ever been considered, *elsewhere than here*, the best course with every description, except that particular species of the *Fuci* class known as the *Zostera marina* (wrack grass,) a long (say two or three feet) flat leaf or spear, a sixteenth of an inch wide, which, in the heap, hangs together in large masses. This is more difficult to decay than the rest; but when short, answers a very useful object, over and above its saline and vegetable properties as an amendator of the texture of clays, in which its detached short pieces will remain visible for many years, dividing its particles. This weed could be readily and expeditiously broken or cut fine by a horse-power operation and machine, similar to the teeth and concave and convex of the common thrasher; and then that too would be best ploughed in green. Its length entire would render the operation of ploughing it in, if at all possible, extremely difficult, and then it would remain undivided by decay too long for free tillage.

Although I, for my own part, entirely disagree with the practice, so often urged, of applying lime, *out of the earth*, to vegetable manures *which have been cured*, or in any way deprived of their succulence or mucilage, or to animal manures or substances in any shape, I would use it freely with all kinds of the sea-weed *while green*; because the lime in that contact will become effectually divested of all its causticity, be thus readily fitted for immediate action on vegetable growth and the soil, and will by its heat overcome the check to fermentation which the saline impregnation of the weed gives to them. If the heap in this state be occasionally wet, it will aid the operation by preventing the excessive heat which the lime would engender.

Lime, as I understand it, not only betters the texture of a clay soil, but its causticity particularly is *destructive of any acidity in it*; and so are the saline parts of sea-weed, as I believe, and propose explaining presently. Perhaps before the causticity of the lime is exhausted by a contact with green vegetable fermentation, or with the soil, but assuredly after, its greatest use is as a stimulant or solvent of the vegetable or animal manures within the soil, and for whatever of pabulum may be requisite to the fibre or rigidity of the plant in sustaining itself against the influence of the winds while attaining its maturity. We have a familiar exemplification of the action of lime on dried vegetable substances, on boards and pickets. The minute splinters left in boards by the teeth of the saw, if soggy or prone to rotting, *whitewashed*, become hard and indurated, and seem checked in their progress to decay by the lime, and the wood is perfectly solid. The same result will be visible if it be applied while yet caustic to dried hay or straw. When lime is brought immediately in contact with animal substances, as with oils, it corrodes and solidifies them; with animal juices, it assails and operates similarly on them, leaving nothing but the mere aqueous fluid; with animal flesh, it checks its putrifactive progress, and as it were petrifies it; with effluvia, it absorbs it. The chemists say, probably with truth, what the lime takes up, or renders *insoluble*, in time it will give back again. This, though true as to a *part* of the substance imbibed, may or *may not* be as to *much of it*: but if even so, it should be recollected that the object of applying manure is to benefit *the first*, as well as the future crops; and the first is dependent entirely, whatever may be the supply put into the soil, upon that portion of the manure which *is immediately soluble*; and if that be held in suspense by the lime, the first crop at least will suffer. This not unfrequently happens with the farmer as to his manure. For the want of an admixture of a portion which is *readily soluble*, his crops come up *ahead of the manure*, and leave him to suppose it not so effectual as he had anticipated; an argument, by the by, for blending manure with the soil before its moisture is assailed and evaporated by the drying influence of the sun, and for that humectation which could be given to it from a reservoir in or about the barnyard for the liquids, and an admixture of it at the moment of taking it out for use. But I am digressing. To return: as to sea-weeds—

I would then *first use them green*, as far as my farming wants might require or permit.

Next. If the supply be sufficiently extensive, (with me it probably is 800 two-ox cartloads annually,) I would use it liberally as litter in every and any shape about my stables, cattle stalls, hogpens, barnyards and muck roads; and that too in opposition to common practice, as far as practicable, *while green*; because, it will be perceived by those who use it, that as (with the wrack grass more visibly) the weeds dry, a white efflorescence of salt gathers upon the surface, which rains wash away, and this salt is one of its most valuable properties. If, while passing from its green state, its succulent, mucilaginous and saline properties escape into the materials for manuring which environ it, the vegetable remains of the weed, divested of its natural juices, will, in escaping, serve as an absorbent of other useful liquid brought in contact with it.

A *third*, and very beneficial mode of using sea-weed, is by *incineration*. Reduced to ashes, its properties become concentrated, and it is both powerful as a manure and useful *commercially*. The carbonate of soda of commerce is obtained by lixiviating the ashes of sea-weed. The best variety is known by the name of *barilla*; an inferior kind, known by the name of *kelp*, is prepared from sea-weeds on the northern shores of Scotland, and may be so anywhere where it is to be found. The purest barilla always contains potassa and soda, and the chlorides of potassium and soda; each of which, though perhaps most profitably employed in the manufacture of soap and glass, would, if applied as a manure to the soil, operate powerfully, and at the same time, from its strong alkaline influence, serve as a solvent to other manuring substances in the soil.

I believe the sea-weed, though best in this point of view if ploughed in green, even in its dry state, a corrective of *the acidity of a soil*. On a field, the soil of which was probably the poorest of my farm, and in which I was preparing to put rye, my carts had deposited some green sea-weed in heaps, with the intention of spreading it before ploughing. A want of time prevented the execution of this purpose in the way proposed, and it was thinned with a fork around the small heaps as it lay, after it had become dry, and ploughed in with the manure for the field. As the crop grew, the grain rose in its growth most visibly within the circumference of the sea-weed thus spread around the heaps, and so much so as to be remarked by all about the farm, and to leave no doubt of its influence. The next year, as the grass came in succeeding the rye, some *sorrel* was seen generally over the field, but *none* was visible within the circumference of the sea-weed; and the grass, in comparison with the rest of the field, was visibly improved, and yet continues so. The sea-weed used on this occasion was of the species familiarly known by the name of *chowder*; a very thin leaf, very aqueous, and prone to rapid decay.

The *principal* kinds in use as a manuring material on my shore, and generally in this vicinity, are the *Zostera marina* above alluded to, (sometimes called, here and in England, *wrack grass*;) the *chowder* also before named, and *rock weed*. There is also occasionally intermixed a

dark brown, broad, long and gelatinous leaf, the name of which I do not know.

Sea-weed, particularly the latter and rock weed, are eaten with avidity by swine; and where continual access is had by them to it, will promote their growth and fatten them, though the flesh is far from palatable, if they are not fatted, for two or three months before killing, exclusively on other food better fitted for putting good flesh on them. Some farmers give them little else, up to within that period of fatting time. When thus permitted, however, to range for food on the seashore, they feed exclusively on muscles and such shellfish as they can crush with their teeth, are fond of fish generally, and particularly so of the description known as *horsefeet*.

The wrack-grass sea-weed may also be used as a thatch, and forms a more durable defence against the violent winds and heavy rains than straw.

The latter also is used as a substitute for horse-hair in stuffing matrasses and furniture. For this purpose, it is carefully washed twice in fresh water, and then dried quickly, the intermixture of other sea grasses less fitted for the purpose being picked out.

It is very convenient and effectual for sheltering a manure heap from the drenching of rains, and protecting it from solar heat; for covering plants in gardens, vegetables left in garden grounds, or buried for winter keeping; or for young trees, to protect them from the rigorous frosts of the wintry season, and for a variety of purposes about farming buildings.

An opinion of the practical estimate of its utility may be formed from the fact, that for manuring purposes, it is carted in Ireland to the distance of forty-five miles inland from the seacoast.

Ezra L'Hommedieu, Esq. formerly senator from Suffolk, a very intelligent and skilful agriculturist of his day, in a communication made to the Agricultural Society of this State in 1791, says, "Many farmers are of opinion that one load of sea-weed as a manure, is equal to a load of cowyard manure for raising wheat." And he says, "that within the two years then preceding, he had used more than 200 loads for wheat only, but he did not find it equal by five loads in thirty; that it was found in some respects superior to any other kind for Indian corn, *as it prevents worms and injury from drought*; that the preceding summer, much Indian corn had been cut off by that means, but where the lands were manured by this weed, *the corn was not affected*."

It may not be amiss here, while quoting from this writer, whose authority is too well remembered to permit a question as to the authenticity of his statements, to notice what he says of the *manure of mud* taken from salt water creeks and swamps, and in which the weed often grows:—

"Mud from the creeks on Long Island and on the seacoast of some parts of Connecticut, has been made use of as a manure, with *success in some instances*, when *in others no benefit was experienced*. This is owing to their using *two kinds* of mud. In order to determine which is fit for manure, if you run a paddle or a pole into the mud, and it sticks so fast that it is with some difficulty you pull it out, you may determine *that mud unfit for manure*, it being only loam or clay soaked with water; but if your paddle or pole is drawn out easily, the mud is fit for manure. This mud being *taken out in the summer and exposed to the frost during winter*, in the spring, becomes as fine as leached ashes, and is a good manure especially for grass; being spread on poor loamy land, it brings up white clover similar to ashes, though it takes a larger quantity."

To return particularly to sea-weed, and to direct attention to facts, which here have been little if at all noticed. There are many of the *Fuci* class of sea-weed which elsewhere *are*, and here may become *edible*. They are used as condiments by families living near the seacoast in other countries, and by the poor, because in seasons of scarcity they furnish articles of resource as a food.

There are numerous species employed in gardening as manures.

The *Laminaria saccharina* (sweet fucus or sea beet) is sometimes boiled by the common people of England as a pot herb. The Icelanders, Audubon says, boil it in milk to the consistence of pottage, and eat it with a spoon. They are also said to soak it in fresh water, dry it in the sun, and then lay it up in wooden vessels. It soon becomes covered with a white efflorescence of salt, which has a sweetish taste, and in this state they eat it with butter. They also feed their cattle with this species.

The great value of the Iceland and of the Carrigan moss, or *lichen*, in consumptive or pulmonary complaints, is well known every where.

The transparent *edible nests* of the East-Indian swallow, so much in repute at the luxurious tables of the rich in China and the East, are now generally believed to be almost entirely composed of gelatinous fuci, and more especially of the lichenoides. The *plant* also is in high estimation for the table in India.

Of the *Halymenia palmata* (L. dulse,) both the tender stalks and young fronds are eaten fresh from the sea, commonly without any preparation. They are sometimes considered as forming a salad, but more generally are used as a whet. It is said that the inhabitants of the Greek Islands are fond of this species, adding it to ragouts and olios, to which it communicates a red color, and at the same time imparts some of its rich and gelatinous qualities. The dried leaves infused in water exhale an odor somewhat resembling that of sweet violets, and they communicate that flavor to vegetables with which they are mixed. Lightfoot mentions that in the Isle of Skye in Scotland, it is sometimes used in fevers to promote perspiration, being boiled in water with a little butter. It is soft and limber, and does not become rigid in drying, being of a more loose texture than many other sea-weeds.

The *Halymenia edulis* (red dulse) is by many preferred to the *H. palmata*, especially for cooking in the frying pan. Like that species, its smell somewhat resembles sweet violets.

Lmainaria esculenta, (badderlocks or henware.) The midrib, stripped of its membrane, is the part chiefly eaten. In Orkney, the pinnæ are also eaten under the name of *pickles*.

Sphærococcus ciliatus (ciliated dulse,) and *Laminaria digitata* (fingered dulse, sea girdle and hangers,) are sometimes gathered and eaten, like the *Halymenia edulis, palmata*, and other species.

Laminaria digitata. In Scotland, the stem of this species is used for making handles to pruning knives. A pretty thick stem is selected, and cut into pieces about four inches long. Into these, while fresh, the blades are stuck; and as the stem dries, it contracts and hardens, closely and firmly embracing the hilt of the blade. When these handles have become hard and shrivelled, and have been tipped with metal, they are hardly to be distinguished from hart's horn.

Chondria pinnatifida (pepper dulse,) in Scotland, is eaten along with the *Halymenia palmata;* and in Iceland, it is used instead of spice. This species is common to Scotland, Iceland, the Red Sea, and the shores of Egypt.

Floating fucus. The succulent fronds, Turner mentions, are selected and pickled like samphire; and the young shoots are eaten as a salad, seasoned with juice of lemons, pepper and vinegar.

Ulva lactuca, (lettuce leaves or oyster green.) The thin green pellucid membranes, of which this vegetable is composed, are eaten raw as a salad, and esteemed a great delicacy by such as are accustomed to the use of marine vegetables.

Thus, sir, in answer to your wishes, I have given you what I know, or have read of sea-weeds, and their various uses and applications. It may serve to show us that the vegetable kingdom of the ocean, if not as extensive as that of the dry land, has at least its treasures, not only to fertilize the earth, to minister to the weak and the infirm, to feed the poor and the needy, but even to gratify and to satiate the ever-craving and the pampered appetites of the sensualist; that as yet we have not learned fully or perhaps fairly to appreciate them, or this among the many bounties of an ever-good and an all-wise Providence. Yours truly,

W. A. SEELY.

Patent Sausage Cutter.

Fredericktown, Md. Sept. 25th, 1839.

J. BUEL—Sir—Please be so kind as to inform the public thro' the columns of your valuable paper, of a newly invented and useful machine, denominated the "Patent Sausage Cutter," the elaborate invention of Mr. A. Henkel, of New-Market, Va. It is erected on a small bench, enclosed by a perforated concave; a crank turns a cylinder, on which are fixed eight revolving knives, which pass through as many upright steel bars, forming a comb. The meat, when cut sufficiently fine, makes its escape through the concave into a vessel set as a reservoir. It manufactures with ease 200 pounds per hour; if pushed and well attended to, much more. The machine is, without difficulty, removed by hand from place to place, to answer the demands of a neighborhood. The knives are readily taken off, when grinding is necessary, and from the neatness and simplicity of the structure, is easily kept in order. To which is added a stuffing machine, which greatly facilitates and expedites that process. We do not hesitate in saying, that every reader of the Cultivator would do well to make further inquiry of its great utility, especially as the price is so moderate as to place it in the reach of the most ordinary circumstances. Price $10. Yours most respectfully,

M. W. WEATHERS.

Proposition for Tow-Path Railway.

Schenectady, September 26, 1839.

DEAR SIR—Many years ago, a very aged Englishman, named Johnson, kept a school in this city. He said that he was born in England, but was bred at the *mouth of hell?*—that is, on board of a ship of war.

Those who have dwelt in seaport cities or towns, have had the opportunity of seeing the lives and manners of that class called *old jack sailors*. The term means that class of sailors who do not aspire to office, but they go to sea merely for support of their lives and vices. They are considered to be the most depraved class of men, as to drunkenness, profane swearing and vice.

We who dwell near the Erie canal, have the opportunity of seeing greater depravity in the same vices, in the boys employed to drive the horses used in towing the canal boats. Those boys become abominable blackguards, and swear most profanely. As they are in service at night and in storms, they learn to drink whiskey, and become more wretched than salt-water sailors. Their stopping places, in rum holes, are various; they meet opposition from the same class, and become worse than sailors on board of ship, where their home is limited. The numerous young women and girls also employed in those boats, have the reputation of becoming very degraded, as well as the boatmen. The poor horses too drag out a most severe and destructive service, in being whipped and urged by the driver boys, and are soon destroyed by the cruel service.

Since the canal commissioners will persist in enlarging the canal, instead of using the rivers, I use the freedom of asking you to advise them so to construct the new towpath as to make it the base of a railway, which can most easily be done; and then, by placing rails on it, locomotive engines may run on it and tow all the boats, thereby saving the destruction of the poor horses, and leaving all those numerous driver boys to be employed in some useful calling, and become wholesome citizens, and not worthless and vicious men, as is the present consequence.

Locomotive engines could tow a fleet of boats at the rate of ten or twelve miles an hour. Both the engines and boats could carry lamps, so as to see and travel safely at night, and transport passengers, goods and produce nearly two hundred miles in twenty-four hours, probably from Albany to Buffalo in little more than two days, and thereby reduce the price of freight to a very small sum, probably a barrel of flour to ten or twelve cents from Buffalo to Albany. The saving of time and board to passengers would be so great, as to enable emigrants to remove to the western states at trifling charges. The produce of the *very* far west may be transported through the lakes and canals to the seaboard, at as small expense as formerly they were transported from the Mohawk.

What an immense improvement this would be! It would equal the steam-ships on the ocean for speed and saving of time. It would be truly a new era; and before another century shall pass, men may leave this for the far west, to the Pacific; cross that ocean by steam, and Asia by railways to the Mediterranean, to France and England; and then take the steam-ships as ferry boats to New-York, and thus encompass the globe in a month.

This improvement would save the numerous boys and girls from such exposure to vice, and reserve them for moral service. What a wonderful improvement would be accomplished in the moral, as in the pecuniary world!

If your mind shall accord with mine on this subject, let me ask you to give your advice. I ask this of you, sir, because you have undertaken to instruct and improve all the operations of common life, in agriculture, &c. &c. in your Cultivator.

If the canal commissioners were to furnish the engines and tow all the boats, that may be a source of revenue to the State; and they must do so if engines are employed. Their stations may be at the difficult passes, and where the locks cluster, as the Little-falls, &c.

Most respectfully,

DAVID TOMLINSON.

Judge BUEL.

Urate and Poudrette.

New-York, 21st Sept. 1839.

SIR—The New-York Urate and Poudrette Company, finding that gentlemen who had purchased their manures, had been experimenting with the articles, some advisedly and others mistakenly, it became desirable, for many reasons, to learn,

1. On what particular grains or garden vegetables the manure was used, the quantity applied, and the result.

2. To know the precise manner and result of each trial.

3. How the urate and poudrette compare with other manures in their effect, and

4. Generally, whether it was not desirable to the farmer and gardener, to have the contents of sinks and privies made into *inodorous* manures.

In answer to their circular, sent to Mr. Linn, of Schenectady, they have received a letter of so interesting a character, that we ask the publication of it, at as early a day as your arrangements and convenience will permit.

Amended instructions, the result of information received, will be published in a few days, for *gratuitous distribution* among those who have or may wish to use the manures. Yours, &c. A. DEY.

(COPY.)

Schenectady, Sept. 19, 1839.

THE N. Y. URATE & POUDRETTE CO.

Gentlemen—In answer to your "Circular," I would say, that I obtained from your company a barrel of poudrette last spring, intending to test its value as a manure, by a few close and accurate experiments. It came to hand, however, so late in the season, that I was unable to apply it as I intended, or to arrive at results which would in all respects prove the value of the substance as a manure, or the best modes of applying it. I applied it to a variety of vegetables in my garden, and also to a small portion of a field of corn of about five acres, at my farm in the vicinity of this city. The vegetables in my garden have grown with unusual richness and luxuriance, and have most evidently felt the effects of the application. Of the results at my farm, I can speak more satisfactorily, because there I can compare the portion which *has*, with another portion of the same crop, in the same field, which *has not*, received the poudrette. This crop is upon a strong, rich soil, which had been slightly manured in the hill, from the fold-yard, at the time of planting. At the first hoeing, and when the plants by reason of the unfavorable season, were extremely backward, I directed my farmer to apply to a corner of the field, where the crop was the least promising, a handful of poudrette to each hill, covering it at the same time with a thin coat of earth.

This was faithfully done, until the poudrette was consumed. The remainder of the field received, a part the usual dressing of *plaster*, and a part of *ashes*. The plants to which the poudrette was applied, were the first to change colour, throwing off the sickly yellow hue and adopting a deep green. At the period of the second hoeing, the same plants retained not only the appearance of better health, but had obtained greater vigor and more size than any others of the same crop.—They have held the same distinction throughout the season, and it is now plainly visible, although the entire crop is a fair one, that when we come to harvest, we shall gather a greater weight of stalks and more grain from the portion where this manure was applied than from the same space at any other point in the field.

We have certainly no experience proving that the same results could have been reasonably expected from the application of any other of the various manures in common use. With us, plaster has long been considered the grand restorative for this crop, and ashes with many farmers almost a specific; and, indeed, that both substances are very useful as manures on most varieties of soil, is universally conceded. Mills to grind plaster for manuring purposes, are as common throughout the country, as those devoted to grain, and I have seen boats, loaded with *leeched ashes*, toiling their way from the far west, in order to enrich farms on Long-Island. In this experiment, poudrette was applied side by side with plaster and ashes, under circumstances in favor of the latter, and yet they have most indisputably yielded the palm to the former; and all this is not without reason. Heat and moisture are the sources of vegetation: poudrette, if it have it not in itself, will generate more heat and for a longer period than either plaster or ashes, and will absorb and retain more moisture. It seems, also, to decompose inanimate vegetable substances in the soil with which it is mixed, and so to diffuse and incorporate itself with the soil as to change its colour around the plant to which it is applied. Like most other manures, only more sensibly and rapidly, it imparts of its qualities to every substance with which it comes in contact; and by the aid of its own and borrowed heat and moisture, assimilates all to itself, and thus exercises, although applied in most inconsiderable quantities, a certain and immediate influence on vegetation.

I regret that I did not receive the article so as to apply it at the time of planting. I am not sure that the results would have been more successful, and except for the purposes of experiment, I should be content to use it hereafter on most crops, as I have done this season.

Desiccated manures have long been appreciated in Europe. There, one ton of them have been estimated to be equal in fertilizing properties to thirty-six tons of barn-yard manure. At this rate there is a large balance on the score of economy in favor of the former; and when it is remembered that the manures as prepared by your company, are wholly inodorous and may be conveyed in barrels to the most remote parts of the country as commodiously as flour, and at a trifling expense, our agriculturists should be moved by every consideration connected with cleanliness, rural economy, the productiveness of the soil and the right use of the means which Providence places before them, as incitements to industry, to promote the use of substances, which left undisturbed, are worse than useless, scattering, in our large cities and towns disease and death, and which, when submitted to your *alchemy*, spreads health and verdure, and blesses and rewards both the citizen and husbandman.

I shall be pleased to receive your "*Improved instructions for using the manures*," of which you speak, and to know at how early a day this fall, I may order a few barrels for future experiments. Very respectfully yours, &c. A. L. LINN.

Plans of Farm Houses.

Lake C. H. Ia. Sept. 5, 1839.

Hon. J. BUEL—My worthy friend—I am much pleased with some of the plans in your last (August) number. That to which you have awarded the premium, certainly is a very convenient house for any family, farmer or other occupation: and I certainly think that that single number of the Cultivator is worth more to every person expecting to build, than all he ever has or ever will pay for the paper.

That the "bump of design and constructiveness," is not possessed by a very large majority of mankind, I think is, or can be fully attested, by viewing the thousands of piles of brick and mortar, and lumber, called dwelling-houses, throughout the country. It seems to me, that if the builders of a great many houses which I have seen, had put all their art and skill in play to make them *inconvenient* and *uncomfortable*, they could not have succeeded better to their wishes.

But the truth is, that men would rather build a convenient than an inconvenient house, if they knew how; but unfortunately they cannot tell how their own design will suit, until the house is built and tried. And where is a farmer to find good plans of farm buildings? Can you tell, sir? I think not. For in all the architectural designs that ever I have examined, I never have found them. And yours is the first paper that ever I have seen such very useful things published in. I hope you will continue the good work. And I hope every one of your readers, whose *wife* thinks he has a very convenient house, will furnish you at least the ground plan: so that out of a great variety, you might select the best for publication, and out of these certainly every person, by adopting one plan, or parts of several, could always suit his own taste better far than he could do by adopting an original design of his own. I think it will be conceded, that you cannot fill a portion of the Cultivator with more useful matter than such drawings. I hope the additional expense to you will not deter you.

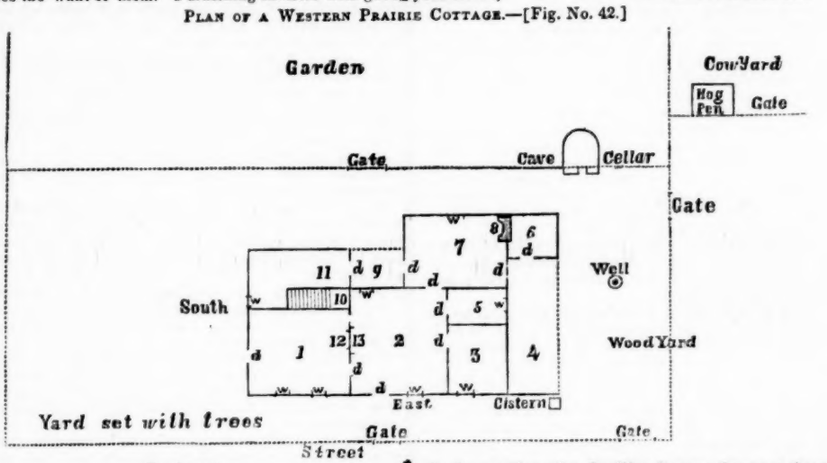
To begin, then, I offer you the ground plan of my own house. It is not of so much consequence to give the elevation, unless where a detailed bill of expense is given.

You have heretofore given a great many excellent plans of out buildings, &c.; that ought also to be continued. No one is fully aware how valuable such plans are, until he commences building himself, and then he sees the want of them. Furnishing farmers with good cheap plans will also tend to prevent another error that some have committed—that is, building a house so big that the whole farm, stock and cash, are sometimes all swallowed up in the house, before it is completed.

It is said that the author of the Declaration of American Independence, swallowed up $70,000 in building a "great house," which has been since sold with 200 acres of land, for $2,500, and now stands a monument of the lack of any proper design in the builder. We all know that the owner died, lacking that independence that he declared all ought to enjoy. This great misshapen mass of materials, was the great cause of his pecuniary embarrassments.

Then let all builders beware, that they do not build a house so big that they cannot live in it, nor so good that when done they cannot use it. I remain, as usual, your friend, SOLON ROBINSON.

PLAN OF A WESTERN PRAIRIE COTTAGE.—[Fig. No. 42.]



Explanations.

1. Spare room in the southeast corner of the house, 16 by 16 feet.
2. Common family room, eating room in summer, and cooking room in winter, situated in the centre of the house, so as easily to be kept warm; 15 by 18 feet.
3. Bed-room, 9 by 11 feet.
4. Wood shed in winter and wash shed in summer, 10 by 21 feet.
5. Pantry, 7 by 9 feet.
6. Room for soap, meat, &c. 7 by 10 feet.
7. Kitchen, 12 by 14 feet.
8. Kitchen fire-place.
9. Open passage, to give light to west windows of common room, 6 by 9 feet.
10. Chamber stairs.
11. Buttery, 9 by 16 feet, excepting stairway.
12. Parlor stove. d. Doors.
13. Cooking stove. w. Windows.

In the draft, I have sketched the position of the well, cistern, garden, yards, &c. which I consider as a necessary part of the "fixings" about a farmer's house.—Upon our soil, cellars under the house are not admissible; and in my opinion, should never be made under a dwelling-house, only in very dry soils, and then *always kept clean*.

My house is built of hewn logs, but the same plan might be adopted in using any material. It is esteemed a very convenient house, without a foot of waste room.

The south part is a story and a half, the ridge running east and west; the other part one story, the ridge running north and south, and roof extending down over the kitchen. The wood shed is a "lean-to" on the north end.

I am much in favor of one story farm houses. They are much easier for the good woman, and I believe the extra cost of roofing is fully saved in several ways. The frame need not be near as strong for a single story, particularly in a windy situation; and comfort and convenience never should be dispensed with by a farmer for show.

If you think the plan would be of sufficient interest to your readers to warrant its publication, and if I could ever be assured that it added an hour's comfort, or saved a dollar of expense to one of them, I shall be happy to think I have given it. I hope you will be furnished with numerous other plans, so that all tastes may be suited. Your friend, &c.

SOLON ROBINSON.

Farm Dwelling Houses.

Grand Rapids, Kent co. Mich.
20th August, 1839.

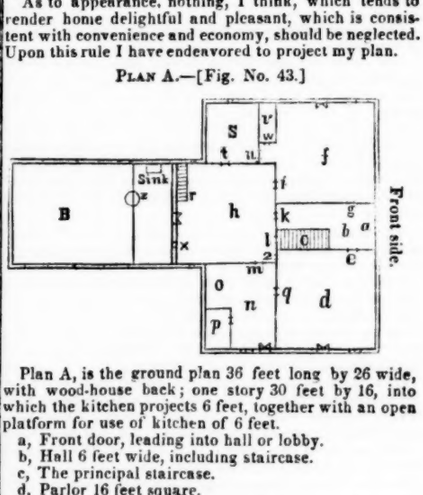
Judge BUEL—Sir—Although too late to compete for the premium so liberally offered in your most valuable publication, yet thinking it might (if you deemed it worthy of publicity,) benefit some one else, who thinks as I do in relation to building, I send you the enclosed plan of a dwelling house, to be built of brick, which I commenced making preparations for building the spring past. As I am not a mechanic, but a farmer, unused to drafting, and besides have no other implements than a carpenter's square and compasses and my pen, the drafts will of necessity be rough, but may serve to give an idea of my plan.

In the erection of a dwelling house, there are three things which I consider essential, viz.: First of all, convenience and suitability to the wants of the family who are expected to occupy it. Secondly, economy in the expense of its erection; and lastly, (and by many, perhaps, not thought at all essential,) its beauty or pleasant aspect, which I think ought not to be overlooked. Upon these points I will make one or two remarks. As to the convenience in the arrangement of rooms, the increase of a few additional steps in a part of a house which has to be traversed fifty or one hundred times in a day, would, in the course of the common period of a person's life, amount to a distance of travel that would surprise and astonish us I have, therefore, endeavored to place those apartments contiguous to each other whose uses have the greatest connexion.

I have always been of the opinion that unnecessary expense in building, is one of the poorest of investments of money, as you receive no profit in return, but are subject to the expense and loss of keeping in repair, and the sure although perhaps slow decay of time. I have, therefore, adapted the size and plan of my house to the wants of that of a common or small farmer, (which I am,) who cultivates and tills from 100 to 125 acres of land, which class, I presume, constitute the largest portion of your subscribers. Many a man has entailed upon himself and family, perplexity and misery by running into debt in the erection of a large and showy "castle," (as some traveller has termed our large country houses,) a portion of which he could neither use nor needed. I always esteem a small well finished and furnished house, preferable to a large unfinished (or finished) empty one.

As to appearance, nothing, I think, which tends to render home delightful and pleasant, which is consistent with convenience and economy, should be neglected. Upon this rule I have endeavored to project my plan.

PLAN A.—[Fig. No. 43.]

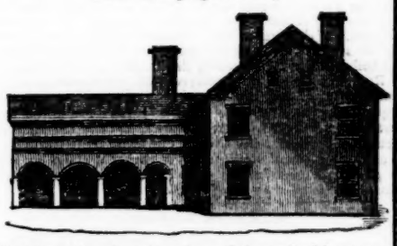


Plan A, is the ground plan 36 feet long by 26 wide, with wood-house back; one story 30 feet by 16, into which the kitchen projects 6 feet, together with an open platform for use of kitchen of 6 feet.

a, Front door, leading into hall or lobby.
b, Hall 6 feet wide, including staircase.
c, The principal staircase.
d, Parlor 16 feet square.
e, Door leading from hall to parlor.
f, Dining room, 16 feet square.

g, Door, leading from dining room to hall.
h, The kitchen, 16 feet square.
i, Door, leading from kitchen to dining room.
k, Door from kitchen to hall.
l, Door to cellar stairs.
2, Door from kitchen to parlor.
m, Door from kitchen to bed-room.
n, Bed-room, 10 feet by 12, including clothes-press, with a small fire-place.
o, Bed recess, size of bed.
p, Clothes press.
q, Door from bed-room to parlor.
r, Back stairs to kitchen and wood-house chamber.
S, Buttery, 7 feet by 8.
t, Door from kitchen to buttery.
u, Door from buttery to dining room.
v, Clothes press.
w, Door from clothes press to dining room.
x, Door from kitchen to platform and wood-house.
y, Platform, open to wood-house, with sink for wash dish, 6 by 16 feet, &c.
z, Well of water. B, Wood-house.
Windows. M, Fire-places.

PLAN B.—[Fig. No. 44.]



Plan B, is the elevation view of the end of front part and side view of wood-house. I have thought it unnecessary to draw plans of cellar and chambers. The cellar is intended to be divided in two parts, with windows, and one outside doorway, with steps. One part with fire-place and kettle set in an arch, for coarse kitchen work; cellar wall to be laid in lime mortar; cellar bottom to be floored with hard burned brick, to prevent rats digging under the wall and entering cellar, and no hollow space left for rats or mice, from cellar to garret. The front building to be two stories. The chamber to be divided into four bed-rooms on back side and two rooms with fire-places on front side. As chimneys in brick houses against outside walls, take up very little room and little additional expense, I have prefixed a chimney to each fire place on ground floor. This will give one to the kitchen, to which is attached the fire-place in cellar; and two to the end of the front part which has the bed-room, and one for dining room at the other end, coming out of front side of roof; another false chimney, for the sake of uniformity of appearance, might be added at trifling expense. This gives the fire-places in the centre of the side of each room.

A house, according to my estimate, of this description, would, at ordinary price of materials and labor, cost about $1.300 dollars, finished in a plain handsome style. Respectfully yours,

J. F. CHUBB.

On Education.

Yates, Orleans County, Sept. 16, 1839.

Hon. J. BUEL — Sir — I have come to the conclusion, although personally an entire stranger, of addressing you on the (now much agitated) subject of education; and if business is pressing, you will only need to cast your eye on the signature at the end of this (at least, what I intend shall be,) long communication, to know that its perusal may be dispensed with, till an hour presents in which you can give it your attention without an infringement on your own more important concerns. My apology for thus intruding upon the notice and time of a person of your high standing, will better appear in the importance of my subject, than it could in any words I might utter.

I am well aware that those moral reformations which most materially benefit community at large, originate with, and are most successfully carried on by, those whom Providence has placed high in society. Happy would it be for us as a nation if all great people understood this, and entered as cheerfully into the work for which Infinite Wisdom seems to have designed and fitted them, as do many whom I could name as inhabitants of the truly benevolent city, of which you are both a resident and (forgive merited praise) ornament.

Though I do not belong to the class mentioned above, and am too sensible of my want of talents to think I could do much good if I did, yet since philanthropists have become so deeply engaged in the cultivation of the human intellect, I have felt an almost irrepressible desire to offer my mite of aid; not as one fitted by education to instruct the public—a position I could not maintain — but as possessing some little experience as an *American mother* — a word, a name, sir, as you are already aware, of no small import. I have observed with some regret, that in those eloquent appeals (of late so frequent) to public sentiment, on the subject of education, that a reference to the duty of mothers has not been so often had as I think the public interest requires. There are, indeed, very few who really consider how much the state is dependent on our exertions to cultivate, to refine, and to direct into the proper channels of usefulness, its choicest wealth, the intellect and strength of its junior population. When I reflect on what has been done by some, to educate their families, in this late wilderness of Western New-York, with comparatively no public aid, and then look at the facilities now so liberally held out to parents by the State, I cannot but feel an anxious desire that they may so accept and apply them as shall not only bring comfort and credit to themselves, but enable them also to return to the State "other" with the five talents they are receiving at its hands.

Now, sir, one of the objects of this communication is to suggest to you the iden, that it might be proper to give mothers a more general invitation to enter into the labors of this field of usefulness, than they have yet had. There are many who only need to be reminded of their duty, in order to do it. There is an energy natural to woman, that when once awaked and directed to one object, accomplishes great things: witness the thousands of garments and materials for such, that have been provided and sent off by them to heathen nations within a few years. Now I would not propose to stop these benevolent operations; but I would make them the "mint and cummin of their tithe," that need not be neglected while the "weightier matters" of providing for, of governing, and of instructing their own offspring, must be attended to. I would not be understood to mean that mothers should provide for the temporal support of their children, but for their present and future happiness, by an unremitted attention to all their doings for a number of the first years of their lives. We have divine authority for saying that this duty, when faithfully performed, never fails of being attended with success. I know there would seem to be some exceptions to this rule; but 'tis a great thing to have done our duty. Oh! that parents could be led to realize this while their children are young! How much misery would be avoided, both in time and eternity!

Some years since, I saw a woman at her tub, washing; her two children were in the same room, making cob-houses; a lad some older than her son was visiting there, and at play with them. When they had laid up all their building materials, and not finished their houses, the little girl offered to go and bring more, if her brother and his visitor would not take any of hers in her absence. Both promised faithfully that they would not. As soon as she was out of sight, the visitor proposed that they should each take a few of hers, in order to make their houses the highest; the brother at first refused, but was finally persuaded. The mother was one that (whatever might claim her attention) kept an eye, and an ear open to the doings of her children. She had made up her mind that to "guide the house," meant something more than to keep the clothes clean, though she knew that to be essential. She believed that to have "brought up children," would be to have grown up herself into that perfection of character which the gospel enjoins, and to have led her children up with her. Happy will it be for America, when all its young mothers shall begin with, and adhere to, such principles while rearing their families! She took her seat by her children, and spent the next half hour in obedience to that divine command respecting laws, which says to parents, "thou shalt teach them diligently," &c. Those boys are now young men, both only sons; both their fathers upright, honest men. The visitor has not been under the care of a mother like the one described above; he is now a noted thief, and has been taken up by the public authorities as such. The other is what chivalrous people would call the "soul of honor:" none that know him, would be afraid to trust him with thousands. Now who can say that he would not have been a thief as well as the other? He was persuaded to break his word, and to take what was not his own, and might have been again and again, but for his mother's watchful eye, which was his constant guard until his feet were fairly set in that path from which Infinite Wisdom has said "he will not depart." When I reflect on the incidents of this nature that have come under my own observation, I feel an almost uncontrollable desire to impart the little knowledge I possess to those who are just beginning the fearful task of training immortal beings for everlasting bliss or woe.

'Tis true, yet I know not why, that whatever of reform is started in your city, has a better effect on this part of the State, than if it had originated elsewhere. It was at Albany that, with regard to intemperance, the mighty deep of public opinion was so effectually agitated as to cause its swells to roll with so much force, even o'er this distant land, that almost every distillery was swept from its foundation. Some say, because those first powerful risings of the public mind have subsided, that the temperance cause has died away. I will tell you how it has died away in this little town. At the time of its commencement, there was scarcely one of the beautiful streams with which it is so well watered, but that had one of those public nuisances, a "still," located on it; there was not a church here; the people seemed every day to be growing more and more intemperate and vicious; wives and mothers began to tremble for the fate of their husbands and sons. Ah! and some of them trembled from a cause which even now to write would make my hand tremble. Now our atmosphere is cleansed; the streams of water from which arose such nauseous vapors as distilleries always produce, flow unobstructed and pure into the noble lake to which they are tributaries; we have three large and well-finished churches; and best of all, we have added to the many that may be supposed to have been kept through temperance exertions, some in each church who were called confirmed drunkards, now each Sabbath "sitting clothed and in their right minds," meekly worshipping Him who came to seek and to save that which was lost. The dissipation that seems most prevalent now, is a propensity to waste time. District libraries will prove one of the most effectual remedies that could have been offered for its cure, if the people can be persuaded to apply it; but there are many, very many, not only fathers but mothers, who will not stay at home enough to read and know what they contain. The libraries are a system worthy of New-York and its rulers. But I cannot say what I desire to, on this subject here; therefore I shall accept as a great favor, a sincere opinion expressed by you, whether I had better say any more with my pen at all or not. My husband wished me to consult some of the "learned" of our own county, but as I could not agree with him in thinking there were any superior to himself in literary judgment or taste, I obtained his consent to address a resident of my (once) own Albany county. I thought of D. D. Barnard; of G. Hawley; and indeed I should not hesitate to address that man of powerful mind, William H. Seward, did I not know that the benevolent schemes in which he is already engaged, together with the duties of his station, must fill up his time. Think not it is because we esteem you less, or think your time less usefully employed, that this "lot" of intrusion has fallen upon you. I wish you to tell me, if you think any person in your vicinity would accept an address to parents, scribbled by me, and dissect it, take my ideas, clothe them with their own more eloquent words, and present it to the public. Remember, I speak as a mother that (illiterate though she be) may understand the infantile mind better than man, with all his knowledge of abstruse sciences. Ill health has deprived me of the privilege of laboring as usual in my dairy; so I have turned my attention to writing, and why not as well as though I had been a play-actress and parted with my husband, &c. Respectfully yours,

SELINA TYLER.

On Educating Children at Home.

Schenectady, May 9, 1839.

FRIEND BUEL—In the April number of your Cultivator, under the head "We spread our nets too broad," page 38, the writer says, "The worst place to educate a boy, so far as depends on the advantages of the school, is his native village, where he is wont to lean on parental support, and to remain a mere succor. Send him among strangers, and he will learn *to go alone*, and to depend, for knowledge and character, upon his personal application and good conduct," &c. &c.

These assertions may be plausible to some of your readers; but so far as I have experience, the contrary is the safest course as to the government of children by their parents.

So soon as my children could recognize me, I delighted them by the greatest attention to amuse and please them. This daily attention and fostering care for their comfort and amusement, soon produced their warmest affections and supreme love. They were the most happy when in my care, and were unhappy in my presence, if not in my care and attention. As their knowledge increased and faculties improved, we were extremely careful not to promise the least thing that we did not most rigidly fulfil; so that when they were told any thing, they were certain of its truth, and faithful fulfilment of every promise. Their supreme love and perfect confidence in us was established. If they showed the least disposition to disobey, I told them that I could not love a child who did not love and obey me. This was sufficient for their immediate compliance, for the greatest pain would be the loss of our love, and the birch was never needed nor used. The poet's remark on the influence of love was verified:

> In kindred minds it flourishes alone,
> And claims attachment equal to its own.

We never gave them any *pocket money*, to absorb their thoughts, and to spend at their pleasure. Money was never given them but for specific purposes, although they were always allowed to have free access to it, and were told its objects and uses. They were provided at home with all that was deemed proper, and they had no desire to enter the attracting and debasing cellars and shops for fruit and luxuries, which are the pests of good morals, and ruin of multitudes of otherwise good children.

Before they reached their seventh year, (the age when the human organ of faculty, the brain, is fully developed and matured in volume,) they were manly and womanly enough for that age; for they were spoken to as rational and adult beings, and not in trifling language. They were told that God was the author of them and their kind parents, and all good things; and that their love to him was paramount—next they might love their parents, &c. These are duties not to be looked for from strangers; nor will children receive moral instruction with the same faith from them, as from parents.

When their age increased, and their manners and principles were formed, they travelled without us. They were furnished with money liberally, and were told not to spend money because they had it, but to pay for all useful and honorable wants — to spend nothing in vice nor evil company. They always had enough and to spare, and never asked for a dollar that I had the least hesitancy to furnish, for it never was misused or abused. We are now happy in their reverential and filial obe-

dience and love, and they share in the esteem of society; and the injunction of the wise man, "bring up a child in the way he should go," &c. is fully illustrated in them.

To show the effects of this mode of government, I'll quote one instance in their early years. When their second set of teeth began to appear, I observed that they stood too close, and would crowd some out of regular place. I told them that it would be proper to extract one from each side the upper jaw. They answered that it would hurt. I replied that it would hurt, but that the pain would be short, and the benefit would be ornamental and useful; that if omitted, they would reproach me in riper years for neglect of duty from tenderness, and asked if they would have the teeth taken out on my judgment; they answered in the affirmative. The dentist was sent for, and a beautiful sound tooth extracted from one side; and after a few minutes pause, till the pain was abated, they were asked if they would have one taken from the other side, and it was assented to, and the tooth extracted without further trouble. I then embraced them, and applauded their fortitude and obedience, and they were happy at such result.

I have seen many very fine children, of good and fine minds and manners when they left their parents, ruined, and their manners and morals completely destroyed by being sent from home for education.

I have before heard it said—sending children among strangers makes them manly and womanly. I know it makes them bold; and in some cases they appear in manners to be men and women at twelve or fourteen years, but they are more frequently boys and girls for ever after.

The manners are best formed under parental care: when the first impressions are correct, they will not afterwards be easily rubbed out by improper examples. If they should, through evil communications, be guilty of aberration from duty, their early impressions from kind parents will rise up in their minds, and influence their hearts to repentance and return to duty.

Teachers often make specious promises of useful culture, to influence parents to send their children from home for education and manners; and it often proves useful, particularly to those whose parents cannot, or will not, devote proper care to their children. To such it is often a boon.

When you urge farmers to improve their breeds of sheep, cattle and other farm stock, do you advise them to send them abroad? or to give their best attention to every thing in relation to such stock, if they expect to be successful? And ought not our children to claim so much from us as our cattle?

When children are sent from home for their education, it is not only fourfold more expensive in money and clothing, but often with the loss of good manners, or the acquaintance with evil habits and manners, particularly if they are furnished with plenty of pocket money to use at pleasure while they are not yet qualified to judge of its value and uses, but to be enticed by evil companions to seek opportunities and objects for spending the money merely because they have it.

I can now call to mind many fine children whom I have seen ruined through such means, when they had the promise of fine talents, to become the ornaments of society, had they been prudently educated in early life by examples and precepts of industry and morals. Indeed, I conceive that the most valuable legacy parents leave to children, is a strictly moral and useful education. The want of such education is the direct cause of most of the evils in society. When will the law-makers and conservators of public morals understand and apply these principles, and learn that their true duty is to prevent evils and crimes, rather than the punishment of criminals?

My dear sir, you'll forgive me, I hope, for these observations, as I assure you that I give them to you merely to correct what I conceive to be wrong opinions and to exhibit a better example. Let parents who have the means, be liberal in establishing good schools at or near home, and employ competent teachers at some additional cost, and save their dear children from exposure to vice, greater expense and ruin, if they believe there is any value in these opinions and experience.

Yours respectfully, ——.

REMARK.—If all parents could, and would, imitate the example of our worthy correspondent, it would go far to invalidate our position—that *boys learn best from home to depend upon good habits and good conduct, for reputation and wealth.* There are no teachings so impressive and lasting as parental examples; yet we must take things as they are. Many parents lack either the opportunity, the faculty, or the inclination, to train their sons as they should train them, during their academic years; and where either of these contingencies happen, we are still of the opinion, that the boy is likely to do much better under a good master abroad, than he will do under a slack discipline or misapplied indulgence at home. The master will, or should, be more watchful of the habits of the stranger boy, than of him who is, in other than school hours, under the nominal control of his parents. If the question be tested by the examples of the age, we are inclined to believe that the answer would be in our favor.—*Cond. of Cult.*

Rohan Potatoes—Chinese Tree Corn.

Friendship, Md. October 10th, 1839.

J. BUEL, Esq.—I planted two Rohan potatoes, weighing each half a pound, on the 15th March, and dug them the 30th September. The product was one bushel, weighing forty-one and a half lbs. they were planted in drills, 40 inches apart; the pieces about eight inches apart in the drills; the potatoes I cut into 26 pieces, made four short rows, rolled them in lime before planting, hilled them slightly twice, by putting some rich yard manure on them.

A gentleman in this vicinity, planted half an ear of the Chinese Tree Corn, and got about one hundred and fifty good ears from it, and he says it was but partially attended to; he thinks if he had worked it more, the product would have been greater.

I planted a few grains in my garden after the other kind of corn was up, and the tree corn was fit for use the earliest. I remain yours, &c.

ROBERT S. D. JONES.

Chinese Corn.

Albany, Oct. 3d, 1839.

Mr. J. BUEL—Dear Sir—I feel called upon to give some explanation respecting the Chinese Corn, I sold the last spring. From a number of communications received from different persons in the northern and western part of this state, the corn has not succeeded at all. It proves a very late variety; I am satisfied this variety of corn will not answer north of this. I have been charged by some correspondents with *intentionally* committing a deception on the public. *This I disclaim.* No one regrets the disappointment more than myself, and I am willing to render every satisfaction in my power. I am not a practical farmer; I was induced to recommend it to our farmers, from the following high recommendations, and sold it in good faith. I will state the experience of three respectable farmers and unprejudiced men, viz:

Mr. Coombs, of *Upper Freehold, N. J.* planted last season, six ears of the Chinese corn, which produced him thirty-two bushels of ears. His general crop of other kinds of corn, last year, was nearly a failure, and is decidedly of opinion that this corn will produce one-third more than any corn grown in that district, and he this seasons rejects all other sorts to plant this on his farm.

Mr. Hendrickson, of the same place, had a great proportion of his corn the last season, destroyed by the cut worm, and replanted his field with the *Chinese Corn* which overtook what was left of the other, and was fully matured some time before corn that was up and well under growing way when the Chinese was planted, and produced the best corn in the field—nor had it any treatment different from the common corn. He this season planted ten acres of it.

Mr. Prentiss, of the same place, planted last season, this same corn, from the 16th to the 21st May. It was perfectly matured and ready for husking on the 1st of September, and on the 16th of September, the whole crop was cut down and stacked. His crop, however, was materially shortened by not then understanding the peculiar branching properties of this variety; notwithstanding this, and the severe drought, his crop was a full average. *Grant Thorburn's* recommendation has been fully before the public.

Under these circumstances, I leave it to the public to say, whether I was not justifiable in recommending it as a new and early variety. Respectfully yours.

WM. THORBURN.

P. S. If it is not asking too much, please add the following, from *E. P. Roberts, Esq.*

[*From the American Farmer.*]

THE CHINESE TREE CORN.

"*John S. Skinner, Esq.*—Dear Sir—I purchased last spring, of Gideon B. Smith, Esq. an ear of the above corn, which had been grown by Mr. Grant Thorburn, of Hallett's Cove, New-York, a part of which I planted in a bed in my garden, and as the success which has attended this experiment may, in part, be owing to the preparation of the ground and mode of culture, it may be as well to detail it.

"The bed was at first highly manured with fresh stable dung, then spaded deep. The ground being thus prepared, I had holes dug four feet apart, about four inches deep, in each of which I dropped two grains of crop, the which I covered with a compost of equal parts of spent ashes and rich mould. When the corn first came up it looked yellow, and supposing that it might be owing to too much acidity being in the ground, I sprinkled over each hill about half a gill of equal parts of air-slaked lime and plaster of Paris, which I mixed with the soil by gently stirring the earth around the plants of corn. I subsequently gave it three thorough weedings and hoeings, taking care each time to make my hoe penetrate deeply into the earth, and each time increasing the size of the hill around the roots. As directed by the notice published by Mr. Thorburn, I have suffered the suckers to remain, and from the luxuriant appearance of my corn, and its prolific yield, I have no doubt he has hit upon the right plan of cultivating it.

"Attracted by its fine appearance, I was induced a day or two since to go into the patch and count the number of ears upon some of the hills. Upon one I counted ten, upon another fourteen, and upon a third, nineteen ears. This, being from two grains of corn planted, must be considered a good yield. This corn is a pearly white, of the flint variety, the ears medium size, and I have no doubt will make an excellent crop of corn. It grows to the ordinary height, yields a great abundance of fodder, and is withal an early corn, having been sufficiently advanced two weeks since, for roasting ears. On strong ground, well manured, with suitable culture, I have no doubt it may be made to yield an average acreable product of a hundred bushels. In the fall I will measure my little patch, and give you a faithful account of its yield in *long ears* as well as *nubbins*, by which you will be able to form a correct idea of its adaptation to field culture.

"By some mistake, two dozen ears of the same corn were pulled some days since for table use, and I have no hesitation in saying that it is equally as sweet as the sugar corn, with this in its favor, that the ears are nearly twice the size.

"Whether this corn originated from a few grains found in a chest of tea, as asserted by Mr. Thorburn, I will not pretend to say; but of this I am certain—it is a most excellent variety, and is worthy of extensive cultivation.

"Should this hastily written note be deemed worthy of insertion, you can give it a place, and oblige your obedient servant, EDWARD P. ROBERTS.

"*Mulberry Grove, Baltimore Co. July* 31, 1839."

Uses of the Sunflower.

Oneida county, Oct. 7th, 1839.

MR. EDITOR—Can you or some of your correspondents, inform me, and your subscribers generally, of all the uses of the "Sunflower," and what would be an average yield per acre? &c. &c. and much oblige,

A READER OF THE CULT.

Not having a thorough knowledge of all the uses to which the sunflower is applicable, we copy the following from the London Farmers' Mag.—*Cond.*

"*Cultivation of the Sunflower.*—On inquiring into the use made of this plant, we were given to understand that it is here (in Tartary) raised chiefly for the oil expressed from it. But it is also of use for many other purposes. In the market places of the larger towns we often found the people eating the seeds, which, when boiled in water, taste not unlike the boiled Indian corn eaten by the Turks. In some districts of Russia the seeds are employed with great success in fattening poultry; they are also said to increase the number of eggs more than any other kind of grain. Pheasants and partridges eat them with great avidity, and find the same effects from them as other birds. The dried leaves are given to cattle in place of straw; and the withered stalks are said to produce a considerable quantity of alkali."—*Bremner's Excursions in the Interior of Russia.*

Mammoth Sunflower.

Lake C. H. Ia. September 23, 1839.

J. BUEL Esq.—Dear Sir—Enclosed I send you a few seed of what appears to me as a remarkable prolific sunflower, and also as illustrative of the fact, that all of our domestic plants may be greatly improved by care in selecting seed. I have practised for several years past, saving seed from the principal head on the most prolific stalk, and last year I thought I had nearly arrived at the heighth of bearing power, when I had a stalk with forty heads. But the seed which I now send you, is from a stalk with sixty-five seed heads, which grew in my garden the present season. I venture to say there would have been at least ten more heads, but another stalk grew so close on one side that it prevented the branches from spreading in that direction.

Perhaps however, that all this, to you may not be in anywise remarkable or worth notice, but to me, and others who have seen it growing, it is considered so.—It is a well known fact that parsnip and carrot seed, and probably many others of similar branching kind of plants, should only be saved from the principal head. And it seems reasonable to me, that every vegetable may be improved by care in selecting the seed, as easily as I have improved this sunflower.

Many may ask what is the use of raising the sunflower? I reply that it is worth as much or more than corn, and is exceedingly healthy to feed all domestic animals, and particularly hens and horses, and whenever it is raised in sufficient quantities to warrant it, oil mills will be built that will create a good market for the seed. And if no other use than mere ornament was made of it, I should much rather see it growing in waste corners, than useless noxious weeds. I hope you will do me the favor to plant a few of the seeds that I send you, if for no other purpose, that when you look upon their growth, it may be a happy memento to you that there is one other than yourself, that rejoices in every improvement he sees made in the agricultural pursuits of a country, that must soon degenerate below the regard of some of her warmest friends, unless the present awakening spirit of improvement, is made to assume an ever waking watchfulness throughout the whole community.

I am proud to subscribe myself one of your agricultural friends. SOLON ROBINSON.

Mixture of Fruits, Grafting, &c.

J. BUEL—Dear Sir—You answered well, all the queries of your correspondent, dated "Michigan, 14 June, '39," except the last query, viz. "Will the trees from the stone of the peach, plum, cherry, apricot, &c. produce fruit the same quality as did the trees on which they grew?"

From my observation, nature is correct and regular, like producing likeness in the vegetable as in the animal kingdom.

The seeds and stones of the fruit of any tree or plant, standing alone, and when the blossoms or the generative organs in them are impregnated from its own genitals, will uniformly produce a progeny of trees and plants, which will produce fruit like the parent tree or plant, lusus naturæ excepted.

We set in the same garden, fruit trees of all sorts, and vegetables to produce seeds of all kinds, near to each other. Those which are in blossom, (their bridal habiliments,) at the same time, and of the same genus, will cast the pollen from their stamina or male organs on the pistils or female organs of their neighbors, and thereby produce hibrids, mules, mulattoes.

I once planted pits of fine yellow gage plums, from a

tree in my garden. Two of the trees produced common blue plums, nearly alike; one a large blue plum, tinged with red, late to ripen, and excellent for sweetmeats; and one produced a yellow gage, about half the size of the parent tree, and of inferior quality. The parent tree stood near to blue plum trees, and the progeny were all hibrids.

I planted the pit of an egg plum from a garden of plum trees of various sorts. The egg plum is nearly the size of the hen's egg, yellow, acid, and ripens in September, and probably the best for sweetmeats. The seedling tree produced plums of similar color and shape, of less than half the size of the egg plum, and ripened the first week in August. The flavor was sweet, except near the stone it was acid, like the egg plum.

I reared a peach tree in the same garden. The first season of bearing, the peaches were large, yellow, and very fine; the next season it bore peaches of red blush. An early red peach tree stood a short distance east of the tree in question, and I presume the east wind prevailed when they were in blossom at one time.

Most persons who have planted the sweet boiling corn near to the hard yellow or white corn, and even fifty rods apart, have noticed single kernels of the hard, on the ears of the sweet corn; these kernels appear to be wholly of the hard corn, studded by the side of the shrivelled sweet corn. So all the other trees and vegetables mix in the blossoms, and produce new varieties. Some are inferior; but we are now enjoying some most delicious new varieties of plums, of much larger sizes and of superior flavor: they are hibrids.

Apples are improved in the same way, or are rendered inferior. The flavor of choice apples grafted on the stocks of *sweet* apple trees, is more mild than the flavor of those grafted on stocks bearing *sour* apples.

If you plant potatoes of one color and kind, which were produced near to those of another color, you often collect both colors and sorts from the hill planted of the one color only.*

I have said enough to those who observe the works of nature, to establish the proof of the cause of hibrids and varieties in fruits.

It is often asked, which is the best method to transplant trees? The most successful mode that I have practised, has been, to open a hole sufficiently wide to permit the roots to extend in their natural position, not to be cramped. Fill the hole full around the tree with dry and loose earth, such as of onion beds in the garden, and of good quality; then dash in a pail of water, and shake the tree gently. The water converts the fine earth to liquid mud in the hole around the tree; the mud will cling to all the roots; the water will soon sink below, leaving the mass of mud compact around the roots, and no cavities of air. Then fill up the hole again with dry earth, and press it gently down.

If the tree is set in dry earth, filled in, it leaves vacancies of air under the roots, and they starve and perish. Many fine trees are lost in transplanting, by saving the handsome top. The roots of the newly set tree cannot receive immediate nourishment from the loose ground, sufficient to support a large top; and while the roots are connecting with the ground, the top dies from want of nourishment.

It is best to graft trees immediately after transplanting them, because you then cut off the top to insert the graft, and leave but little of the top, that the scion may not be starved. The roots will support and nourish the trunk and scion, if the season is not too dry. Trees are saved by watering the first year, in dry seasons, when they would perish with a large top, which is apt to be retained if the tree has been grafted in the nursery.

Some persons have great objections to cut off the top of trees. It depends on the treatment, whether it injures the tree. To be perfect, (and we should attempt perfection in all things,) the grafting salve should always follow the pruning knife. The most economical and effectual mode of applying the salve is to get a small furnace of sheet iron, of the size and shape of a lump of refined sugar, such as the tinsmiths use for heating their soldering irons. Let a small hole of about an inch and a half in diameter be cut out near the bottom, with a slide door piece of the iron to cover it, large enough to be fastened above with a rivet, so as to slide the door open when heat is wanted, and to cover the hole and shut out the draft when the draft should be stopped. Get a tin or sheet-iron vessel made, of the shape and size of a tin quart measure, to fit into the top of the furnace, with a flange at top to prevent it from sinking below the top of the furnace, and a wire handle or bail to lift it out by. On the side of the furnace opposite the door, let a small tube be added, or a groove to serve as a chimney for draft, to make the charcoal burn in the furnace, to melt the grafting salve in the quart or pint cup, according to the quantity wanted for few or many trees. When the grafting salve is melted to a liquid state only, you may dip in a painter's brush and apply it to the wound, like painting, when the limb is cut off. It being in a liquid state and warm, it will adhere to the raw wood, and shut out the caustic air, like as balsam of fir does in a cut on the finger, applied before the air inflames it; it heals by what is called first intention, or natural growth of the flesh on the finger, or the bark on the tree.

Some persons prune trees in the month of March, because they then have leisure time. The best time to prune in this climate is about the first of June, or after the juices or blood of the tree is in full and steady circulation. Then, if covered with the salve as above advised, it will exclude the caustic air and rains from injuring the wood and lips of the wound, where the bark must begin to furnish a covering, like the skin on animals, over the raw place. If trimmed in March, or left without a cover of salve or soft cowdung, or something to exclude the air and rains, the wind will dry the raw wood, it will shrink and crack, and let in rain and produce a rot, which will always remain in the trunk to the age of a century, and often cause the trunk to become hollow and die.

Scions should be cut in February or March, here; or before the buds have swelled by the vernal heat, while in their state of hibernation. Place the scions on the damp ground of a cold cellar bottom, cover them with wet straw, and place a piece of board on to keep them wet and from warm air. The scions should be thus kept till about June, and then grafted. If the grafting is performed early, as in the warm days of April, and the cold winds from the west and northwest blow within a few days thereafter, they will check the supply of sap in the stock, starve the scion, dry it, and it will perish.

The safest time to graft, is after the season is advanced so far that the stock receives a full and regular supply of circulation of blood, to nourish the scion. After the scion has begun to receive nutriment from the stock, it will soon starve and perish if the nourishment is stopped by cold and dry winds.

Young plants and animals are prone to life. If scions or plants are once wakened from their state of hibernation by supply of nutriment, they will easily perish if that supply is discontinued. So young animals, if food be withheld from their birth, they will not perish for a long time; but after they have once fed, and become dependent on nourishment through the stomach and alimentary canal, they will not long exist if deprived of nourishment. The house fly, and other dormant insects and animals, will hibernate and lay all winter without food, and waken in the spring in vigor and health, but soon perish of hunger if deprived of food while in active life.

Some fishes also follow this course. The mackerel becomes blind in winter, and sleeps in the deep till spring, when the scales fall from their eyes, and they come on the shoals to feed. The black fish, or rock fish of the rocky places in the sea, hibernate at the commencement of winter, and sleep till spring, like the bear, racoon and squirrel, &c.

It is best to set young forest trees a mere bare pole, except a few buds of the size of a knitting-needle. The roots will supply the trunk the first year, and feed the aftergrowth, and the top will grow regular and handsome. If a small limb be left on one side, it will take the growth, and the tree will be one-sided. Large trees of any size may be transplanted, if the earth is permitted to freeze around the roots, after digging a trench around beyond the small roots, so that the tree may be set in a hole prepared.

Make salve for grafting, of one part tallow, two parts beeswax and three parts rosin, to be melted together, and thrown into water; and while warm, well worked by pulling and doubling and pulling, &c. It should be so hard as not to run off by heat of the sun, and not so hard as not to yield to the growth of the scion.

Most respectfully,
DAVID TOMLINSON.

Schenectady, September 5, 1839.

* Doubted by the Conductor.

Queries.

Essex Co. Va. Oct. 1, 1839.

The subscriber will thank Judge Buel, or any of his contributors, to answer the following inquiries, if they can do it by stating the results of actual and careful experiments. He asks not for mere opinion, pro or con, —having quite enough of his own, and some to spare, —relative to the matters in regard to which he is anxiously desirous to be informed by some of his brethren, who have more experience than himself.

1st. What are the indications (if any,) by which we can certainly know, when the beet, the mangel wurtzel, the carrot and the parsnip come to maturity?

2d. Does either, or all lose any portion of their nutritive properties by remaining in the ground after that time?

3d. Which (if either,) loses most?

4th. In digging them up, is there any difference as regards their preservation, between cutting and twisting off their tops?

5th. Is it not best to feed away those tops in their green state, rather than to steam them?

6th. What is the most profitable distance at which to cultivate beets and mangel wurtzel?

7th. Which is preferable in cultivating any or all of these root crops,—to manure broad-cast on a level surface, or to manure in furrows and sow on the ridges formed over them,—the quantity of manure being the same in both cases?

The subscriber believes that he has some good reasons for doubting the propriety of the common practice in most, if not all of these cases, and would therefore be glad to receive any information which experienced root culturists can give him, since the culture of roots is becoming daily more important throughout the Atlantic states.

In stating that he has no wish to receive mere opinions in reply, he begs not to be understood as objecting to them altogether, for he is entertained by many which he reads in your paper, while some are well calculated to excite inquiry, if not to convey instruction. To all such, he always pays due attention; but he must avail himself of this occasion to say, that if that portion of the contributors to the Cultivator who are so fond of indulging themselves in this easy kind of writing, would give us more facts,—more results of experiments fairly and accurately made,—and less speculation, they would greatly increase the value of your excellent paper, to all who seek improvement in the theory and practice of husbandry.

J. M. GARNETT.

The Season, Crops, Mode of Culture, &c.

Salem, Indiana, 9th Mo. 17th, 1839.

We have had an extreme drought in this part of the west, which has extended from the middle to the eastern part of this state, a part of Ohio, and the central part of Kentucky, which has affected our corn and root crops very much. We shall not realize more than half a crop of corn or potatoes, and our crop of turnips, &c. will be almost a total failure, though we are not much in that line yet. I planted a few ruta bagas last year; I did not much more than save seed; this year I planted about one-quarter of an acre, early in last month; they have but lately come up, having lain in the ground about six weeks, without moisture sufficient to make them vegetate. One of my neighbors, who takes the Cultivator, put in one-quarter of an acre early in the sixth month, in a piece of new ground, and notwithstanding the drought, his bids fair to be pretty good.

We had an abundant crop of wheat and oats; grass light.

I have not used any other plough in my corn crop this season, since I planted, than the cultivator, and a double shovel, which is similar. I kept them pretty constantly moving, and I find that my corn is much better than my neighbors.

I rented a field on my place to a man, and he worked it well in his way; that is, with a Carey or bull plough, which makes a large open furrow, and there is only a lane between his and the piece that I tended, and his is on much the best and freshest ground, and mine is the best corn.

I should like to see more frequent remarks of the conductor of the Cultivator, as I rely much more on his than the opinions of his correspondents; yet I am well pleased with the Cultivator, and think that I have been and expect my neighbors much benefitted by its excellency in the art of farming. I remain thy friend,

MICAH NEWBY.

Lunar Influence.

Newby's Bridge, N. C. 9th month 26th, 1839.

Respected Friend J. Buel—I have many times heard the remark, that pork killed on the increase of the moon was better, or would waste less in cooking than that killed on the old or decrease of the moon; and that corn, beans, peas, &c. would grow and yield better, planted on the increase, and potatoes, turnips, parsnips, &c. were best planted on the decrease of the moon.—These things I have usually disregarded in my practice.

In the tenth number of the 5th volume of the Cultivator, Calvin Butler states his experience in regard to pork, and on speaking of the subject, among some of my neighbors, one observed, he did not care about the moon, when he killed his pork; if the wind blew from the south at the time, his meat would not shrink in cooking? Another said "if his pigs were littered on the increase of the moon, it was of no consequence to him about the moon or wind when he killed them."

Among my hogs intended for my own use the present year, were two of the same litter so near alike in colour, shape, size, and fatness, that it was not easy to see any difference. I therefore determined to try the matter for my own satisfaction. Accordingly, on the 28th of the 12th month, two or three days before the full moon, one of them was killed with the rest of my hogs, which weighed 103 pounds, was cut up in the usual manner, marked No. 1, and salted away. Two weeks afterwards the other was killed, weighing 118 pounds, was cut up and salted as the other was and marked No. 2. About two months afterwards a ham, No 1, weighing 11¼ pounds was boiled whole, except the shank, which lost three ounces; two weeks after that, a ham, No 2, weighing 13 pounds, was boiled as the first, which lost four ounces in cooking. About the first of the summer, the other ham, No. 2, was boiled and lost four ounces; the other No. 1, was used without knowing when, consequently without weighing. Since that time two of the middlings have been used in my family, alternately boiling a piece of one and then the other. I have not, neither has my family, been able to discover any difference in the shrinking of the meat: it was evident that the last killed was the fattest, and if there was any difference in the flavor of the meat it certainly was in favor of that last killed.

I may here remark that in North Carolina and Virginia, hogs designed to make bacon for our families' use, is preferred that will weigh 100 to 150 pounds each, consequently the greater number of hogs when killed, does not exceed the latter weight. Our method of curing bacon is, after the hogs are cold, take off the head and separate the ribs from the back bone, with an axe, split the hog open, take out the back bone, and flakes; then divide each side into three parts, ham, shoulder, and middling; trim the joints smooth; then to each ham or shoulder, put a tea spoon full of salt petre, rub it on the flesh side; then salt it well with common salt, made pretty fine, and pack it away in casks or in bulk:—in a week or ten days overhaul it, arrange the salt on the meat again, and if necessary add more salt, and lay it away again; in two or three weeks after, wash off the salt and hang it up and smoke it a brown colour, and let it remain hanging until used or taken to market.

If I can have hogs of about a year old, with small bone well covered with meat and fat, managed as above, whether the moon be old or new, or the wind blow from the north or south, when they are killed, I have confidence that I shall have good bacon, and that it will not waste much in cooking. Thy friend,

DAVID WHITE.

EXTRACTS.

On the Preservation of the Fruits of the Earth by Secluding them from the Action of Air, Water, and Heat.

[*From Chaptal's Chemistry applied to Agriculture.*]

The atmospheric air coming in contact with fruits deprives them of their carbon and forms carbonic acid.

Fruits exposed to the solvent action of water suffer decomposition by having the affinity existing between their constituent principles weakened, and at length destroyed.

Heat dilates the particles of bodies, and thus diminishes the forces of cohesion and attraction, and favors the admission of air and water.

The combined action of these three agents produces very speedy decomposition: the effect produced by any one of them is slower, and the results different. So that in order to preserve fruits from decomposition it is necessary to guard them from the power of these three destroyers.

In several European countries, particularly in the north, roots of all kinds are preserved merely by secluding them entirely from air, heat and water; this is done by digging deep ditches in a dry soil upon a spot a little elevated, and depositing in them the roots, which are afterwards covered over with a layer of earth of sufficient thickness to prevent them from suffering by the frost; over the whole is then laid a bed of straw, broom or fern, in order to protect them from rain and from the water of melting snows, which might filtrate through into the pit.

Roots, to keep well, must have their surfaces entirely free from moisture before being thus buried.

The roots have in themselves a preserving principle, which does not exist in a dead plant or one that has terminated its period of vegetation: they have as yet lived but a portion of their vegetable life; thay have not formed the seeds, which secure the continuance of their species; and to fulfil this great design of nature they profit by every circumstance, which can favor and confirm their vegetation; but when placed for a time beyond the action of air, water, and heat, their organs remain at rest till again excited by the presence of these powerful agents.

As dead bodies do not retain this animating principle, the energies of which are only suspended in roots, grains, &c. during the winter, so they suffer decomposition, though less rapidly, from the contact of air, heat, and water.

In the way of which I have just spoken, beets, carrots, potatoes, and many other vegetables may be preserved uninjured till summer.

A very simple method of preserving them at least free from decomposition, is, to heap them up in piles upon a very dry soil, and then to cover them upon all sides with straw enough to protect them from rain and frost: in England, this is esteemed the best method of keeping turnips.

Vegetables may likewise be preserved by heaping them up in barns to the height of five or six feet, care being taken to cover them well with straw or hay at the commencement of the severe cold weather. Should the roots in these heaps begin to vegetate, they must be removed, and thus their farther development checked.

Thomas Dallas has published some very important observations* upon the modes of treating potatoes which have been affected by the frost. With us such potatoes are rejected, as being unfit either for food or for furnishing fecula. The able agriculturist above mentioned considers them in three different states; 1st, when they are slightly touched by the frost; 2d, when the outer portion of their substance is frozen; and 3d, when they are frozen throughout.

In the first case he finds that nothing more is necessary, than to sprinkle the roots with lime to absorb the water formed under the skin, which would speedily occasion their complete decomposition. In the second instance he causes the potatoes to be pared and thrown for some hours into water slightly salted. When the potatoes are completely frozen, he finds them to yield, upon distillation, a spirituous liquor resembling the best rum, and affording much more alcohol, and that of a better quality, than can be procured from the roots before freezing.

The preservation of grains has always been an object of much consideration both to governments and agriculturists, and it is a peculiarly interesting one, because bread forms so large a portion of the nourishment of Europeans, and because the scarcity and high price of it have been the cause or the pretext for popular discontents and insurrections.

The art of preserving grains unchanged, besides obviating this evil, presents the additional advantage to the agriculturists of enabling him to make a good harvest, compensate for a bad one, by maintaining the price of bread stuff at a rate suitable alike for the consumer and the producer; and thus avoiding those periodical successions of high and low prices, of abundance or scarcity, which disturb social order, and give rise to excesses prejudicial to all.

It appears that the people of the most ancient times preserved their grains uninjured through several years, merely by secluding them entirely from the action of air and moisture.

The Chinese have from time immemorial preserved their grains in pits, which they call *teon:* these ditches are either hewn out in rocks, free from chinks and humidity, or what is still better, they are dug in a firm, dry soil. If there be any danger of humidity about the pits, they are lined with straw, or wood is burned in them to harden and dry the earth. The grain is not put into the pits till some months after the harvest, nor till it has been well dried in the sun; it is then covered over with mats made of the chaff of the grain or of straw, and this again by a bed of earth well beaten down that it may not be penetrated by water.

Varro, Columella, and Pliny inform us, that the ancients proserved their grain in ditches hollowed out of rocks or dug in the earth, the sides of them being lined with straw. Quintius Curtius relates, that the army of Alexander experienced great privation upon the banks of the Oxus, because the inhabitants of the country preserved their corn in subterranean pits, the situation of which was known only to those who dug them.*

I have several times had occasion to visit in Amboise what are called Cæsar's granaries, and from examining the place, I think there can be no doubt that it was intended for the preservation of grain. About thirty feet above the level of the waters of the Loire, there are dug in a dry and solid calcareous rock, deep and broad excavations arranged in three stages separated from each other by vaults. Behind the first excavations, there are formed others, and separated from them by a wall of rock six or seven feet thick, and within these are built, of brick and mortar, circular granaries of about fifteen feet in diameter: the upper part of the granaries is contracted, and the aperture, which is that by which they are filled, is covered over by a stone: the grain is taken from them through a hopper placed at the bottom. To avoid all dampness, the space contained between the walls of the granaries and those of the rock is filled with fine and very dry sand from the Loire. A gallery formed also in the rock communicates on one side with the granaries, and on the other with a staircase cut in the rock, which conducts directly to the banks of the river. It would seem that the excavations served as magazines of stores for daily consumption, and the granaries for reserved supplies. It is difficult to conceive of any arrangement more suitable for preserving grain, or of a situation more favorable for obtaining or for transporting it.

In some warm and dry countries, it has been custo mary from time immemorial to preserve grain, with less precaution certainly than in the granaries above described, but in situations where it could be kept for six or seven years. Prosper Alpinus relates, that not far from Cairo there was a high wall built, enclosing a spot of ground of about two miles in circumference, which was filled every six or seven years with heaps of wheat: he adds, that the abundant dews of night softened the outer portions of the grain and caused it to germinate but that in a short time the sun dried the young shoots, which then formed a hard covering to the mass, and did not permit either air or moisture to penetrate it. In a similar manner individuals may preserve their grain upon floors in the open air, merely by covering the heaps of it with mats.

In the Basilicata, according to the report of Intieri,† the farmers form their corn into heaps upon the borders of the sea; these are soon covered, in consequence of of the rains, with a strong vegetation, which forms over them a layer impermeable by air or water. * * *

The grains which are consumed in Algiers and Tunis, or which are exported thence, are, after having been well dried in the sun, deposited in trenches cut in the rocks, and having their sides lined with straw. The Count of Lasteyrie has found the same mode followed in Malta, Sicily, Spain, and Italy. There are even some countries where the governments have caused trenches to be constructed, in which the cultivators of lands might deposit their harvest till a favorable season for selling them.

In order to secure a perfect preservation of the grain in trenches, it is necessary to make use of certain precautions, without which the entire loss of it must be hazarded: the means of security are as follows.

1st. The grain should never be put into trenches till it is perfectly dry; it must therefore be first exposed to the sun for several days, and during that time be often turned, that every part of it may become equally dry.

2d. In constructing the trenches, choice must be made of a dry soil, or a rock free from chinks, that there may be no danger either from dampness or the filtration of water. The walls of the trenches may be made with such cement as the Romans used in the construction of their aqueducts; this is composed merely of lime and pebbles; the walls of these aqueducts were raised in frames, and the surface of them carefully polished; I have visited the remains of some of them in various parts of France, and have found them everywhere present the same appearance; I am convinced that this cement is impenetrable by water, and of a solidity more than sufficient for constructing the sides of trenches.‡

3d. The third precaution consists in excluding the air completely; if this fluid should gain admittance, it must necessarily convey in at the same time moisture and oxygen, the two principles of germination; the presence of air will likewise favor the existence and multiplication of insects: whilst if the trench be full of grain and well closed, all the air which it contains will be changed into carbonic acid, (as I have explained in speaking of the action of air upon fruits,) and the insects will remain torpid. This last assertion is, as we shall shortly see, supported by the results of the experiments which have been made by the Board of Provisions of War, for the purpose of ascertaining the best mode of preserving grain.

But the construction of these trenches, as it involves some expense, and requires much care, will be for a long time rejected by mere farmers. However advantageous this arrangement may be, it belongs entirely to public authorities, great cities and governments, to set an example of the use of it, by withdrawing from circulation, during years of abundant harvests, large quantities of corn to be deposited in trenches and preserved against years of scarcity. Much has been written within a few years, upon the best methods of preserving grain; but all those that have been proposed were founded upon the same principles.

The Board of Provisions of War, under the direction of Count Déjean, has performed a series of well directed experiments, from which excellent results have been obtained: the apparatus used in them consisted of lead receivers hermetically sealed and having all their joinings soldered. Meal and grain full of weevils were enclosed in three receivers; when these were opened, at the end of a year, it was found that no injury had been done by the weevils; they were all either dead or in a state of torpor. In one of the receivers there was found a collection of grains adhering to each other in a mass about as large as a middling sized apple; this arose from the entrance of air and moisture through a hole the size of a pin, accidentally left unsoldered in one of the joints.

The elder M. Ternaux caused trenches to be formed and filled with Corn in the beautiful field of Saint Arven; in order to be sure of the preservation of the grain, he caused the trenches to be opened from year to year, and the results were always satisfactory.

Corn, well dried and guarded from air and moisture, may be preserved in the ear for a long time, and it is a well-known fact that in some agricultural countries the sheaves are formed into stacks which are taken down either for consumption or the market, at those times when the laborers upon the farm can be employed only in threshing in a barn.

Instead of constructing trenches of stone without the farm buildings, there might be built, within them, bins of stone, of a size proportioned to the produce of the farm, and with the openings covered in such a manner as to exclude the air. The same purpose may be answered by chests and tubs of wood having their outsides covered with a thick coat of oil paint. The great earthen jars in which oil is kept at the south, are likewise very good for keeping grain in.

Either of these methods is preferable to that of storing grain in such granaries as are commonly used, since the utmost care will not entirely protect it from moisture, insects, mice, &c. nor will it often remain in them unchanged beyond three or four years.

Corn which is housed without being thoroughly dried, or which is stored in a damp place, acquires a musty smell and taste, which render it unfit for the customary uses: but as this alteration affects only the outer covering, and not the substance of the kernel, it may be easily removed by throwing upon the grain double its weight of boiling water, carefully stirring the mass till the water becomes cold. The spoiled kernels which swim upon the top, must then be removed, the water poured off, and the grain spread to dry. M. Peschier preferred employing for this purpose boiling water rendered slightly alkaline, and afterwards washing the grain in pure water.*

When corn has been heated or injured in a perceptible manner, the vegeto-animal portion is almost always changed; in this case the farina is not susceptible of a good fermentation, and the bread made from it is unwholesome: such grain is fit only for the manufactory of starch.

The modes of preserving vegetable juices and other articles of food deserve also much attention.

The substances of which I shall now speak present the alimentary principle so mixed with, or dissolved in the aqueous fluid, as to render them exceedingly susceptible of alteration and decomposition. It is not sufficient to seclude these from the air, since they contain for the most part within themselves those principles of fermentation, which, acting upon each other, produce decomposition.

Seclusion from the air alone will not preserve these substances; the nature of some of the fermentative principles must be changed; and for effecting this I would recommend the preserving process made use of by M. Appert and confirmed by numberless experiments. I shall here only make mention of the mode of preservation; as the work of M. Appert is before the public, it may be consulted in regard to the necessary details respecting each operation.†

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*. Bibliothèque Universelle, Art. *Agriculture*, Vol. II, p. 123.

* Des Fosses propres à la Conservation des Grains; par M. le comte de Lasteyrie.

† Della Perfetta Conservazione del Grano; 4to. p. 12.

‡ The mode of building may be used which the Count of Lasteyrie has proposed in his work entitled, Des Fosses pour la Conservation des Grains.

* Annales de Chimie et de Physique, tome VI. p. 87.

† Le Livre de tous les Ménages, ou L'Art de conserver pendant plusieurs a nées toutes les Substances Animales et Végétales. 1811, 2e édition; par M. Appert.

The process consists,

1st. In putting up, in glass jars or bottles, those solid or liquid substances which are to be preserved.

2d. In corking the bottles carefully.

3d. In placing these vessels upright in a boiler filled with cold water, as high as the ring of the bottles.

4th. In causing the water to boil, and continuing the ebullition for a longer or shorter time, according to the nature of the substance contained in the vessels.

In this process we see that nothing more is required than a boiler and some bottles or jars; it is one that may be practised in the smallest domestic establishment. In order however to avoid accidents and insure success, certain precautions in each part of the process are necessary: the principal of these, especially those that are indispensable, I shall here point out.

The choice of bottles is a matter of some consequence: the form of the champaigne bottles is the best, and as the glass of these is of a more uniform thickness than that of others, it is generally better annealed; these bottles then should be preferred, particularly if they have proved their soundness by having resisted the action of the compressed air contained in foaming wine.

Too much care cannot be taken in the choice of corks; only the superfine should be used, and these should be free from defects. The length of the corks should be at least eighteen or twenty lines, and the diameter a little greater than that of the mouth of the bottles, into which they must be forced by blows of a mallet.

The bottles must be filled within three inches of the ring; the corks selected for them must be softened a little in water; in stopping a bottle, put the small end of the cork into the mouth of the bottle, and force it in as far as possible with the hand; then wrap the bottle in a towel, and, holding the neck of it firmly in the left hand, drive the cork in by repeated blows with a mallet; a few lines of the length of the cork must be left beyond the mouth of the bottle to receive the wire or twine with which it is to be secured. Each bottle is then to be put into a bag of strong linen, which will cover it to the cork, and placed in a boiler filled with water to the rings of the bottles. The boiler is to be covered, and over the lid must be placed a damp linen cloth, to secure the retention of the heat. The apparatus being thus prepared, the water may be heated to boiling, and continued in that state as long as the nature of the substance to be preserved requires.

When the fire has been removed from the fire-place a quarter of an hour, the water must be drawn off by means of a siphon, or of a stop-cock placed near the bottom of the boiler; the cover must not be removed to take out the bottles till fifteen minutes after the water has been drawn off.*

When meat or other solid food is to be preserved, wide mouthed bottles or jars may be used in the same manner as the narrow-necked bottles mentioned above.—Good gravy of meat, and beef three-quarters cooked, when prepared according to the foregoing directions, have been found as good after being eighteen months at sea, as when first put up. Attention must be paid in putting up solid articles in bottles, to pack them closely, in order that as little air as possible may interpose between the pieces. *Consommés*, strong decoctions,† and jellies of meat containing all those portions of it most nourishing to man, may be thus preserved uninjured for a long time.

Before milk is put into bottles for keeping, it should be evaporated in a water or vapor bath, and the scum which forms upon the top carefully removed; half an hour before evaporation is completed, there should be mixed with every pint of the reduced milk, the yolk of an egg well beaten. After being thoroughly cooled the milk must be put into bottles, and corked tightly to undergo the second scalding. Milk preserved in this way has been found at the end of two years to be unchanged, and to afford butter and butter-milk the same as if new. It is not however pretended, that it preserves all the qualities of new milk; it almost always has a peculiar odor and taste, but such as it is, it forms an agreeable and a valuable article for sea stores for long voyages.

Cream evaporated one fifth-part and put into bottles after having had the skin coagulated upon the surface removed from it, and then subjected to a second scalding for an hour, has not been sensibly altered at the end of two years.

Those vegetables of which so much use is made in all families, may be preserved in the same manner; they are, however, boiled a shorter time, and some of them must previously undergo a degree of preparation. For instance, in preserving asparagus it is necessay, after having washed it, to plunge it first into boiling and then into cold water, to deprive it of its acrid taste; it afterwards receives but a slight scalding.

To preserve the color of the small bush-beans, bottles filled with them are plunged into very cold water where they remain for an hour; they are then drawn out, corked, wired, and scalded for an hour. Artichokes, after having had boiling water poured over them, are washed in cold water, drained, and scalded in the bottles for an hour. Cauliflowers are prepared in the same way as artichokes, excepting that they are boiled but half an hour. Legumes in general, prepared and seasoned, and put into bottles when three-quarters cooked, will keep very well with being scalded twenty minutes.

Antiscorbutic plants, and the juices which are extracted from all fruits and vegetables require only to be scalded. When juices are to be kept, they should be carefully strained and clarified; plants require to be well washed, picked, and dried, and to be crowded into the bottles. When any of these preparations are made use of, they should be dressed in such a manner as to give them the appearance of those prepared daily in our kitchens.

Those articles that have been cooked before being put into bottles, only require to be heated.

The strong decoctions will need the addition of nothing but water to become good broth.

The jellies of beef, veal, mutton, chickens, &c. when diluted with water, and seasoned with salt, make excellent soups.

The legumes must be washed upon being taken from the bottles, and then prepared as if fresh.

The juices may be appropriated as usual, either for food, drink, or medicine.

I shall close this article by observing, that some bodies are preserved from destruction, and guarded from the attacks of insects, and the action of air and water, by means of a coat of varnish laid upon the surface of them; this practice has become very common, and when the varnish is applied to bodies well dried, and does not scale off, it preserves them a long time. Oil paints and tar produce the same effect.

The custom of preserving eggs by immersing them in lime water has lately been introduced into Paris; the shell of the egg thus immersed becomes covered with a thin coat of lime, which preserves its contents unchanged.

Memoir on the Classification of Soils.*

BY M. DE GASPARIN.

[*From the Edinburgh New Philosophical Journal.*]

It is undoubtedly a matter of surprise that in an art which engages the attention of so many distinguished men,—which is the great basis of national prosperity, and which excites so many different energies, a name has not yet been devised for the expression of the different qualities of earth which form the theatre and principal material in all its operations. Attempts have been made to confer upon it a nomenclature, one of the first requirements of a rising science; but before success can be obtained, it must make the same attainments that the other natural sciences have recently done. For the discovery of the appropriate characters of his classification, the author has directed a particular share of attention to Chemistry and Natural Philosophy, to Microscopic Observation, Geology, and Botany; and the soils have been analyzed, experimented upon, and observed in relation to all these sciences. As it is impossible, in this place, to enter at length upon the consideration of these laborious researches, we must confine ourselves to the citation of some of the facts which result from the investigation. 1st, The author points out the small quantity of carbonate of lime which is sufficient to change the character of soils. It is known that the five or six per cent of this substance which is supplied by marling, produces very remarkable effects, whilst the one-hundreth part which is contained in the soil of Lille, as analyzed by M. Berthier, likewise sensibly affects its nature and vegetative power. Lime gradually disappears from soils, being changed into a bi-carbonate. The enclosure of *la grande Chartreuse*, which is formed of the debris of rocks which contain lime, does not now furnish a single particle of this earth. 2d, The carbonate of magnesia modifies soils in the same way as the carbonate of lime. This earth is contained in great quantities in the soils of the valley of the Nile; and those of *Bas-Languedoc* often furnish from eight to thirty-three per cent. 3d, It has often been attempted to ascertain the characters which distinguish those soils in which gypsum produces an effect upon vegetables, and those in which it has none; but hitherto without success. The author has ascertained that gypsum has no action upon recent alluvial soils, and that it produces a beneficial effect upon all more ancient soils, beginning with the diluvian. 4th, He has found sal-ammoniac in all the clays belonging to the vegetable stratum of soils.—This observation shows the importance of clay as a magazine of the materials which favor vegetation. 5th, If by washing we separate into several portions the coarser and finer parts of earth, we find that the tenacity of such soil is in proportion to the quantity of the latter kind, except in a small number of cases. 6th, Upon examination with the microscope, it is ascertained that these exceptions are owing to a coating of ferruginous clay which adheres to the surfaces of the mineral particles,—that washing separates it with difficulty, and that it serves as a cement, forcibly agglutinating, and increasing the tenacity of the whole.

On the Principles of the Classification of Soils.

If we study the objects which we find in nature, that we may know them as they really are in themselves, under all the relations of their organization and their properties, it is in their innermost existence,—in the relation of their parts,—in their resemblances and dissimilarities, that we must seek for the means of grouping them together, without any regard to the circumstances which are foreign to their peculiar and proper existence.

It is thus that Jussieu established the several families of plants, Cuvier those of animals, and M. Beudant his orders of minerals. Each of their groups collects together the beings or the substances which bear the closest resemblance to each other, under all the appreciable relations of their organization or of their texture, but without intermingling therewith any idea concerning their utility, which could only be considered as foreign to the subject; and this forms pure natural history.

But if we regard it in another point of view, if it be not the being or the substance in itself which we wish to study, but only such and such a property of the object, the classification then ceases to be a natural method or arrangement, and becomes a common classification.—Accordingly, when we would study plants in an agricultural point of view, the consideration of families should not mislead us; as it would be impossible to establish any one agricultural principle which would be common to an entire family. That of the Graminæ, for example, presents us with oats, wheat, rice, and the sugar-cane, which require different cultures, and serve for very different purposes. Besides, the number of plants which are the objects of agricultural interest is small, and were we to conduct a course of agriculture, according to the order of families, we should have only shreds of these families, which, detached from their natural alliances, would exhibit nothing but disorder, so soon as the intermediate links were withdrawn which maintain the order of their connection. What, then, under these circumstances, is to be done? The answer is clear,—we must combine together the plants whose kind of cultivation has the greatest analogy, and we should thus have, for example, 1st, trees; 2d, the trees and shrubs which yield an annual crop (such as fruit-trees, mulberries, vines); 3d, the feculent grains (wheat, oats, buck-wheat, &c.); 4th, the plants with oily seeds (the poppy, colza); 5th, the plants which yield fodder (lucerne, spurry, ryegrass); 6th, plants used in weaving (lint, hemp); 7th, plants used in dyeing (dyer's woad or glastum); 8th, the oleraceous plants (pot-herbs, spinage, chiccory); 9th, roots (beet, carrot, madder,) &c. &c. According to this method, classes are formed in which the natural affinities of plants are often broken, but which, on the other hand, present another kind of affinities, such as proceed from their mode of culture. They are, therefore, natural classes in relation to farming, whilst they cease to be so considered in the light of natural history. This is a method which has been followed in regard to medical substances, articles of food, &c. Chemistry itself classes natural bodies in a manner different from what mineralogy does, because the view it takes of them is different. Thus, not only the practical arts, but the pure sciences themselves, modify classification, according to the object they have in view, without at all changing the natural relations of bodies; they determine that one of their properties which ought to predominate in the order they impose.

In agronomy, therefore, it is no longer simple substances, or bodies in their individual condition, such as a plant, or crystal, we have to examine; but it is mixtures of many of these substances, of which we form individuals only by abstraction, as we do in rocks, formed as they are by the union of many minerals. But this intellectual operation which regards the habitual union of several substances and forms from them one collective being, is much more natural in practice, than that which would consist in considering in granite only the three minerals which compose it, without regarding their aggregation; and still more than that which, decomposing these minerals into their last chemical elements, would remove granite from mineralogy, and view it only as a compound of oxygen, silicium, aluminium, potassium, magnesium, and iron. It is thus too with soils, although some may present only a single mineral element, as for example, silex; and though others, as much oftener happens, contain many, and these associated with vegetable and animal debris. We can consider abstractedly each of these mixtures as a pulverized rock, and deal with it, as we do with rocks, in forming a systematic whole.

After having thus demonstrated that both reason and custom authorize us to propose a classification of soils with a special relation to agriculture, we may examine; 1st, what the characters are which agriculturists should

[* The translator of this work has preserved the most delicate fruit by a process somewhat similar to the one here described, but with one pretty important difference. As the preservation of the fruit seems to depend wholly upon the exclusion of the air, which would not be effected by corking the bottles before exposing them to heat, and as the bottles would be in great danger of being burst by the expansion of the air contained not only in the fruits themselves but in the interstices which must unavoidably occur between them, the above method appears to be an imperfect one; she therefore takes the liberty of inserting in this note the process which she has used successfully, and particularly as she has found fruit thus preserved exceedingly grateful in sickness at those seasons of the year when no fresh fruit could be procured, and when that which was done with sugar was neither suitable nor agreeable.

Pick carefully over the fruit to be bottled so as to take only such as is perfectly sound, and put it in bottles having wide mouths with closely fitting corks, shake the fruit well down so as to leave as little space unoccupied as possible in the bottles; when they are quite full, set them uncorked into a boiler of cold water over the fire, raise the temperature of the water as quickly as possible to the boiling point, and as soon as ebullition takes place, put the corks into the bottles, and remove them from the boiler; some ready melted cement, such as is commonly used for closing bottles, must be immediately applied over the corks, and the fruit having been freed by the heat from the air contained within the bottles will thus be protected from the action of the external air, and may be preserved fresh for many months.—Tr.]

† Answering to "portable soups."

* Report of a communication presented to the French Academy of Sciences. This Memoir is the first part of a work upon Agronomy, which is that branch of the science of agriculture which has for its object the study of soils; what belongs to their susceptibility of cultivation, and to their relative value, is reserved for another publication, the author confining himself on the present occasion to the consideration of their classification.

examine in soils; 2d, the relative value of each of these characters; and, 3d, their application to classification.

§ I. *The Characters of Soils in relation to Agriculture.*

When an agriculturist devotes himself to the investigation of a soil, it is a matter of indifference to him whether it is composed of alumina or silica, or whether these substances are in the state of quartz or felspar, or that by their aggregation they form the debris of granite, or finally, that they belong to primitive, transition, or alluvial formations: what he requires, is to know what kind of plants the soil will produce with the greatest advantage, the trouble it will require to put it in a state of culture, the manuring it will need, the quantity of this manure it will yield to the plant, and the portion it will retain in its own substance, these are its agricultural characters,—those which adapt it to the objects of agronomy, and which shed light on his researches.

What we have already said of the composition and properties of soils, demonstrates that certain of their scientific elements have a relation to the properties which are inquired after by agriculture. Thus, as to the nature of the crops which may be expected from different soils, those which contain carbonates of lime and magnesia are eminently qualified to produce wheats and leguminous crops; the siliceous clay-lands are the soils peculiarly adapted to forests; the siliceous are proper for plants which vegetate in winter, as rye, &c.; mould favors the vegetation of those pot-herbs which are cultivated for the stems, leaves, &c. As regards the facility or difficulty of working soils, those that are siliceous are easily dressed, as well as those which have an organic origin; whilst calcareous and clayey present great differences in this respect, according to the diversity of their composition. Finally, sandy and calcareous soils require frequent manuring, and this addition they decompose to the immediate profit of the plants, whilst clayey ones retain the manure, may have the process of manuring postponed to greater intervals, and receiving at the same time a larger quantity of manure. Diluvian soils admit of improvement with gypsum, and siliceous clays with marl; whilst lands rich in organic matters require the dung of animals to facilitate and promote the decomposition of the mould.

Thus, we find in the mineralogical characters we have examined in detail, whether physical or geological, certain relations with the agricultural characters. There are whole groups of soils whose natural characters answer to those agricultural characters, and reproduce properties which are common to them all. After having recognized and distinguished them, we must next recognise those of them which from their importance and generality will most naturally form the primary groups.

§ II. *Relative Value of Characters.*

For the appreciating of the relative value of the agricultural characters which we have enumerated, it is necessary to discover which amongst them is the most indispensable, and those whose absence would be most hurtful to agriculture; the degree of their importance and necessity will then indicate the relative subdivisions.

The appropriation of lands to the different kinds of cultivation seems to possess these qualities in the highest degree; and here, in fact, must begin every kind of agricultural improvement. It is only after having destined a particular soil to an appropriate culture, that we can begin to consider the labor and improvement it requires. These labors and improvements will be without an object and a bearing, if we are still ignorant of the plant to which they would be useful. And, moreover, this investigation of the appropriation of soils to particular cultures, is connected with the most natural classification, in a mineralogical point of view; it breaks the smallest number of affinities, and consequently renders the determination of soils more easy and more satisfactory.

The labor required for bringing the soil into good working condition, is also a matter of great importance; for if the appropriation of soils decides the phytological or botanical part of the question as to cultivation, this other consideration bears on the question of economy. It modifies the plan of regulating the soils which might be determined on from the first consideration taken by itself: it has also a very decided influence upon the choice of the means to be employed in overcoming the resistance upon the number and kind of animals, and upon the implements to be procured. But were this circumstance taken as the primary basis of the classification, we should then break all the natural affinities of soils; for all the mineralogical kinds are, in a greater or less degree, susceptible of tenacity. Besides, it is evident that this greater or less degree of facility in working soils, dissociated from their capability of producing the most useful plants, is a quality of very little value; that it is of no great moment, for example, that we can easily labor a dry sand, and a rich marl only with difficulty; and that, in short, in the examination of an estate, it is the character of the plants we inquire about, before we calculate the expense of their production.

As to improvements, and the necessary means of enriching vegetation, they are without doubt the sign and consummation of good farming; but their use is much less frequent than it ought to be: most lands are cultivated without their aid; and we cannot, therefore, consider an exception which, we trust, will soon cease to be one, in the light of a character so general as the preceding.

Upon the whole, therefore, we establish the subordination of the agricultural characters which ought to be considered in soils, in the following method:—1st, The appropriation of soil to plants; 2d, the tenacity of the ground; and 3d, the aptitude of the soil to receive certain kinds of manures or improvements.

§ III. *Primary Classification of Soils after their appropriation to particular cultures.*

The Cerealia are every where throughout Europe the basis of rural operations. They succeed more or less in all the soils which supply them with a firm support, and which at the same time allow the air to penetrate to their roots; ranging from sandy soils which do not contain less than 80-100 of sandy or rocky materials, to stiff clays, provided that the soils do not contain 2-100 of sea-salt, or any sulphate of iron. The soils or pure mould are also excluded from this kind of cultivation, from the defective cohesion of their elements, and their frequent change of volume. Allowing for these exceptions, there are three principal groups of soils. 1st, the saliferous; 2d, the sandy, which contain even as much as 8-10 of sand or of rock; and, 3d, organic soils, which contain ¼ of mould. This division, it should be remarked, agrees not only with the results of the mineralogical study of the soil, but also with its tenacity; and hence it is perfectly natural.

There remains, moreover, a great number of soils in which wheat thrives, when they contain, besides, a sufficient quantity of organic matter; but they are not all equally favorable. For its successful cultivation, those which contain only silex and clay must have lime added, a principle without which they will scarcely yield any return. As soon as this is supplied, their product immediately increases in a remarkable manner, to the extent of a fourth, a third, and even a half. The vegetation of the Cerealia, therefore, indicates a grouping which subdivides lands into soils containing carbonates (of lime or of magnesia, the latter supplying the place of the former), and into silico-argillaceous, or clayey soils, which do not contain carbonate of lime or of magnesia. Hence the agricultural principle is, in its turn, in agreement with the principle drawn from improvements, and no longer with that of tenacity; for in these two classes of lands, we find that, according to the proportion of the mineral principles which they contain the soils possess a different degree of tenacity.

Other kinds of culture confirm this view. Fruit trees thrive admirably in siliceous and clayey lands, and these are generally the soils of forests; leguminous plants prefer soils in which there is a carbonate, and then they appear naturally; and it is only in the same circumstances that dye-plants afford vivid colours.

We have already remarked, that we cannot avail ourselves of the characters which are drawn from the tenacity of the soil, without destroying the groups which we had previously formed. We can, however, reserve them for the formation of secondary groups, which will subdivide the primary classes. It will be the same thing with those which are derived from the property which gypsum possesses of rendering certain soils eminently productive of vegetables; but we have seen that it is the geological position of soils, more than their composition, which has hitherto contributed to designate them. But each of our groups contains earths of different geological formations, so that we should run the risk of breaking them up if we were to introduce this consideration into the formation of our primary groups; and, upon the principle above insisted upon, this character will rank after the one derived from tenacity.

These principles being allowed, we now proceed to the exposition of the classification of soils, which they supply.

FIRST DIVISION.—*Soils having a Mineral Basis.*

Character.—These soils do not lose a fourth of their weight upon heating them till they emit no more vapor.

FIRST CLASS.—*Saliferous Soils.*

Character.—Soils with a salt or styptic taste, containing at least 0.005 parts of hydrochlorate of soda, or sulphate of iron.

1st, Saline Soils.—Water digested with these soils, gives a precipitate with nitrate of silver.

2d, Vitriolic Soils.—Hydrocyanate of potass gives a white precipitate with the ferruginous salt which is contained in the water digested with this soil.

SECOND CLASS.—*Siliceous Soils.*

Characters.—Producing no effervescence with acids; affording by levigation at least 0.70 for their *premier lot.**

THIRD CLASS.—*Clays.*

Characters.—Not yielding effervescence with acids, and affording by levigation less than 0.70 of the first portion

FOURTH CLASS.—*Calcareous and Magnesian Soils.*

Characters.—Producing effervescence with acids; lime, or magnesia, or both, are found in the solution.

FIRST SUB-ORDER.—*Chalks.*

Characters.—Leaving no residue after the action of the acid, or only leaving a siliceous residue less than 0.50.

SECOND SUB-ORDER.—*Sands.*

Character.—This soil contains at least 0.50 part of siliceous or calcareous sand, which does not escape from a sieve whose division or holes are the 0.02 of an English inch in diameter.

THIRD SUB-ORDER.—*Clays.*

Character.—This soil leaves a residue of 0.50 of clay after effervescence and levigation.

FOURTH SUB-ORDER.—*Marls.*

Character.—After the action of acid, a clay remains whose levigation does not remove more than 0.10 of free silex.

First Section.—Calcareous Marls.

Character.—Having at least 0.50 of carbonate of lime or magnesia in their composition.

Second Section.—Argillaceous Marls.

Character.—Having at least 0.50 of clay.

FIFTH SUB-ORDER.—*Loams.*

Character.—After the action of acid, the residuum presents clay and free silica, which, by their levigation, give each more than 0.10 of the weight of the soil.

SECOND DIVISION.—*Soils with an Organic Base.*

Character.—Losing at least a fiftieth of their weight when they are heated till they do not emit more vapor.

FIRST CLASS.—*Fresh Mould.*

Character.—The water in which this mould is digested or boiled does not redden litmus paper.

SECOND CLASS.—*Acid Mould.*

Character.—The water in which this mould is digested or boiled reddens litmus paper.

In each of these classes, the *genera* are formed by the consideration of the tenacity of the soil, which is so very important an element in its characters.

The work concludes by laying down rules for the description of *species*, and with *examples* of all the methods of description. In reading these, we at once perceive how precise an idea of soils is conveyed in a manner that cannot be misunderstood by any agriculturist.—The possibility of transmitting these clear and pointed descriptions to a distance, follows as a matter of course; and we shall in this manner be freed from all that vagueness which has been so long a just cause of complaint.

"If I have succeeded (concludes the author) in what I have proposed in writing this book, the study of agricultural treatises will be greatly facilitated; the different methods which are followed in distant countries will no longer appear so marvellous, and will become more intelligible; we shall comprehend better the considerations which limit or extend the several cultures, and a necessary link being established between the science of agriculture and other natural sciences, it will become more intelligible to all, and will more readily profit by the progress of all the other branches of human knowledge."

* The "*premier lot*" comprehends the large particles which are deposited when the water in which the earth is dissolved, is strongly shaken.

Upon the Respiration of Plants.*

BY MESSRS. EDWARDS AND COLIN.

In the interesting science of vegetable physiology few or no facts are to be found more beautiful than those connected with the respiration of plants. The same remark, however, can by no means be made concerning the theory which combines these facts, and undertakes to explain them. In fact, we have always experienced the greatest difficulty in admitting this theory, whether considered in relation to the respiration of the seed or of the leaves: and, in truth, scarcely any other phenomenon has been recognized in the respiration of the seed than the disengagement of carbonic acid. This is usually explained by the combination of the oxygen of the air with the carbon of the seed. According to this view, the seed is supposed to be affected only by the atmosphere; the influence of water in this vital act of plants is considered either as absolutely nothing, or is limited to that of preparation and promotion, and it is held in no way to contribute to the production of the gas which is disengaged. This, then, is the first difficulty respecting this theory of germination which presents itself; and those which occur in regard to the explanation of the respiration of the leaves are still more serious. During the night, it is said carbonic acid is disengaged, whilst during the day it is absorbed, and oxygen appears under the direct rays of the sun. Here, then, are the facts, and here the explanation which is afforded: the absorbed carbonic acid must be decomposed by the plant, which again must appropriate the carbon, and disengage the oxygen.

But this capability of decomposing carbonic acid is conferring upon the plant a power which it is very difficult to admit; and it is very seldom found in the mineral kingdom, where the very great simplicity of the composition of bodies increases their decomposing power, and where the much greater number of elements, scattered throughout the different compounds of this kingdom, renders it probable that we should discover some endowed with this property. Finally, water, according to this supposition, is of little or no use in this action, although it is absolutely required for plants, and we are perfectly ignorant of the part it plays. These are some of the considerations which have induced us to undertake the examination of this function in plants; to which we were also conducted by some facts brought under our notice in agricultural physiology, to which we shall solicit attention in the sequel.

Up to the present period, experiments upon the respiration of seeds have always been made in the air; or if made in water, the phenomena which occurred in the liquid have been limited to the explication of what took place in the air; the gas disengaged in the liquid has not been examined, and consequently its proportion has not been determined. What follows is an account of what we have done in relation to this point, and which has yielded very extraordinary results. Our operations were conducted on a great scale, that the effects of the experiments might be more distinctly brought out.

* Read to the Academy of Sciences, Nov. 1838. From Annales des Sciences Naturelles, for December, 1838.

On this account, we selected for our operations a great ball-shaped bottle with a narrow neck, capable of containing six or eight pints of water. We filled this bottle, and introduced forty garden beans of a large size, without any fissure in the husk, or any other defect whatever. To this great bottle we adapted a bent tube, also filled with water, which finally was introduced into a receiver full of the same liquid.

By this arrangement, the beans were in contact only with water, and with the air which it contained, air which, under the circumstances, could not be removed; and this was one of those important circumstances which led to all the success of the experiments. The first phenomenon which presented itself was the disengagement of air-bubbles, which proceeded from the beans. These bubbles were at first very minute, insensibly they increased in size, and in the space of twenty four hours they were very conspicuous.

This evolution of gas was itself a very extraordinary circumstance which had not previously been pointed out, and which scarcely seemed to agree with the received ideas upon germination; still less with the supposition that this disengagement proceeded from air contained in the beans; which idea soon became wholly improbable from the unceasing continuance of the disengagement of the gas, and to such an extent that it could not by possibility be attributed to this cause.

First of all, it is certain that the gas came from the beans themselves, for before we introduced them into the apparatus, we were careful to put them in water and shake them well, thereby detaching all the air which was attached to their surface. For a long time after they were plunged into the water of the bottle, no gas was seen to issue from their surface, and it made its appearance only by degrees. Besides, on other occasions when the beans were cut through, we have seen it proceed from the parenchymatous substance itself.—Many of the beans were actually made to float by the air-bubbles which adhered to them, and fell to the bottom so soon as the bubbles burst.

After a period, which was never less than four days, we put an end to the experiment. Our first care was to weigh the beans, that we might thereby determine the quantity of water which they had absorbed, and we invariably found that it exceeded their own weight. In reality, the mean weight of the beans employed was 1,540 grains (avoirdupois), and the moisture which swelled them amounted to about 1,848 grains.

The most essential point of all in this investigation was to certify that the beans were alive, and in a state of germination; for it is evident that it is a condition which must indispensably be established, that the disengagement of the gas which is effected in the water is the result of a natural and normal function.

When taken out of the liquid, some of the beans had a chink opposite to the point where the radical is situate; but there were only three or four in this condition.

If the beans were living, the function was normal; so we planted them, that we might have an opportunity of comparing them with the same number of other beans which had not been subjected to any experiment, and we had the pleasure to see them spring up quite as well as these. The best method, however, of conducting the experiment is to keep them in moistened paper between two plates. Next day, during summer, they had all completely germinated, and the radicals had projected some four or five lines.

As to the production of the gas, we shall observe that that which was disengaged, traversed the water, and passed through the tube into the receiver, was only the sign of the function; and nothing more than the overplus of that which was dissolved in the water at the moment it was formed; it must also have been in very small quantity. The proportion of air which had traversed the water without being dissolved by it, amounted to between 20 and 40 millilitres; but that which was dissolved in the water, and which was disengaged by boiling, was very considerable, and might well, as it did, surprise us.

The whole interest of the experiment here depends upon the quantity of the air naturally contained in the water, compared with that which had been produced by the seed. Accordingly, we made many experiments to ascertain the proportion of air contained in the water of the well which we used; and we found that the water in our bottles before the experiments, as the mean of our observations, contained 7.5 centilitres of air, and after the experiment 55.5 centilitres, in an experiment of five days' continuance. Hence, after subtracting the air naturally contained in the water, we find 47.7 centilitres of gas, produced solely by the action of the water and the beans. The result of another experiment, which lasted for six days, after making the same subtraction, was 50.5 centilitres of gas, produced above the quantity of air naturally dissolved in the water of the bottle. There was, therefore, disengaged by the sole action of the seeds and the water, after subtracting the air which the latter contained, more than half a pint of gas; a very remarkable effect, and which, when seen on so great a scale, leaves not the slightest doubt as to the action of water in the respiration of beans, abstraction being made for the air contained in the liquid.

Our next object was to ascertain what information analysis would give us respecting the nature of the gas supplied by the seeds. And first, there was an enormous proportion of carbonic acid. Of the 55 centilitres, produced by the experiment of five days' continuance in summer, 48 were carbonic acid. 2dly, An infinitely small quantity, 2.5 millilitres was oxygen, and about 3.5 centilitres, which appeared to be nitrogen. In short, there was, 1st, an enormous quantity of carbonic acid; 2dly, scarcely any oxygen; and, 3dly, a quantity of gas, which, in the mean while, we shall regard as formed entirely of nitrogen, and which amounted to somewhat less than the quantity of air contained in the water.—On another occasion, we shall consider whether any other gas was present.

Whence, then, proceeded this enormous quantity of carbonic acid, in the production of which the air contained in the water must be counted for nothing? It is clear, that since the oxygen does not proceed from the air dissolved in the water, it must be derived from one of the elements of the water itself. The water, therefore, is decomposed; the oxygen, one of its elements, unites itself to the carbon of the seed, and forms the carbonic acid which disengages itself in whole or in part; a question into which we shall enter upon another opportunity.

It now remains to inquire what becomes of the hydrogen, the other element of the water? We suppose, for the moment, that there is no trace of it, as we have stated provisionally above; and since it is not disengaged, it must evidently be absorbed by the seed.

Hence, the results which follow from the experiments which we have detailed, from seeds placed in the conditions stated, are, 1st, that the water is decomposed; 2d, that the oxygen of the decomposed portion, unites with the carbon of the seed, and forms carbonic acid gas; 3d, that this carbonic acid disengages itself from the seed, in whole or in part; and 4thly, the other portion of the decomposed water, the hydrogen, is absorbed by the seed, in whole or in part. These are the four fundamental propositions regarding the respiration of seeds, to which we shall confine ourselves on the present occasion.

It is not a matter of very great moment to ascertain whether all the carbonic acid is completely disengaged. Nor is it of more consequence that we should know at present if all the hydrogen, rendered free by the decomposition of the water, is completely absorbed by the seed; subjects which, however, we shall discuss on another occasion. The great fundamental fact brought out by these researches is the decomposition of water, a fact quite foreign to the popular theory of the present day.

It also results from the facts which we have propounded, that respiration is not, as it has hitherto been considered, solely a function of excretion; but it at the same time exhibits, according as we have demonstrated, a fundamental fact concerning the nutrition and the development of the embryo by the absorption of hydrogen.

In addition to the respiration of seeds, a great variety of which we have examined, we have also investigated that of bulbs, twigs, leaves, and flowers, the results of which we hope to have the honor of presenting to the Academy. We may, however, remark, that the facts detailed in this memoir, regarding the respiration of the seed, form the basis of the respiration of other parts of the plant, as will be more clearly exhibited in the sequel, as well as the part which the air plays in this important function.—*Edinburgh New Philosophical Journal.*

Visit to the Farm of Elias Phinney, Esq. of Lexington, Mass.

[*From the New-England Farmer.*]

We have in the farm of this gentleman substantial proof of the efficacy of "book farming." He assured us that his interest in agriculture was first awakened by reading the N. E. Farmer. Having received a classical education, he has to be sure, the advantage of our farmers in general, for whom so little has been done by education—we were prepared, therefore, in viewing his premises, to witness something a little extra, from what may be seen on well cultivated farms in general: but we found that our expectations had not been raised sufficiently high: we were in fact delighted and astonished to be made acquainted with the wonderful improvements which have been effected on this place since he began to cultivate it, fourteen or fifteen years since.—It was then a poor worn out farm, covered with rocks, whortleberry bushes, and scrub oaks; while the lowlands were inaccessible quagmires and alder swamps of the most unpromising description—the whole farm, consisting of 160 acres, not affording more than 8 or 10 tons of hay, and all other crops in the same proportion—the fences out of repair—the fruit of an inferior quality, fit only for cider—and every thing upon the place at sixes and sevens, as the saying is. It does not seem hardly possible that so much could have been achieved in so short a time. It shows what can be done by untiring diligence directed by science. It is a a complete triumph of "book-farming" over the old course of husbandry, handed down from father to son. Mr. Phinney has had the boldness to strike out of the old path, and in some instances pursue a course of his own invention. His improvements may be divided as follows:

1st. In planting upon the green sward without disturbing the sod.

2d In clearing and draining his waste swamps and quagmires, and converting them into the most productive grass and cornfields.

3d. In clearing his uplands of rocks and laying them into walls of the most durable and massive description subduing the bushes in the unproductive pastures, and bringing them into fertile fields.

4th. In his orchard of apple-trees, which for beauty, thrift and produce, can hardly be excelled.

5th. In his choice collection of fruits of every desirable variety.

6th. In his improved breed of swine.

7th. His barns and accommodations for cattle, swine, poultry, &c.

To which may be added, many other improvements of minor importance, but which add to the interest, beauty, and profit of the place.

The idea of planting upon the green sward without disturbing the sod, has been ridiculed by a writer in the N. E. Farmer, vol. 17, page 317, as being impracticable, especially in the potato crop. We saw an example of this operation, and one too of a most perfect kind, which we should suppose sufficient to convince the most sceptical. It was in a lot of three acres of potatoes. On the 20th of June, there was a heavy crop of grass upon the ground, in addition to which twenty loads of compost to the acre was spread on, and at that time turned over; after ploughing, it was rolled with a heavy roller, (an implement, by the way, which should be in the possession of every one who calls himself a farmer.) The potatoes were planted in drills—had been hoed but once—yet hardly a weed was to be seen, nor a spear of grass daring to show itself, and sufficient earth about the plants, with every prospect of an abundant harvest.—In the spring this ground will be in fine order to lay down again to grass, and that, too, without disturbing the sod; or, if advisable, planted with corn or any other crop.

Allowing the vegetable matter turned in equal to 20 loads of compost per acre, we have with that spread what is equivalent to 40 loads per acre. No wonder, then, that by following this process continually, he should be able to cut from 2½ to 3½ tons of hay per acre, which he actually does from his grass lands. He has another idea which we think important for a good crop of grass; that is, to sow an abundance of seed. His rule is 20lbs. of clover seed per acre, together with a liberal allowance of herd's grass and red top to boot. This would astonish most of our farmers, who can afford only from 4 to 10lbs. per acre.

We saw a field of six acres of corn, from which a crop of 80 bushels to the acre is estimated, and provided we have warm weather sufficient to ripen any corn, we should judge the estimate not too high; the cold weather a few days past is, however, against the corn crop. The variety of corn planted is called the Phinney—a fine long eared, twelve rowed variety, and earlier than the Dutton, to which it has some resemblance.

In another lot on his peat meadow, we saw a smaller field, on which the corn was more luxuriant and promising than on the one just named, and if that produces 80 bushels, we should not be surprised if this produced 100 bushels to the acre. Think of this, you that own unreclaimed peat meadows, and are longing for the fertile prairies of the west; before you sacrifice your farms and bid adieu to the institutions and hills of New-England, make an effort and bring them into subjection: it will prove an antidote to the western fever, or we are much mistaken.

We noticed a fine field of wheat of 8 acres, which the laborers were gathering into the granary. It appeared well filled out: the produce estimated at 20 bushels per acre: it was of the variety called the Black Sea, which we find succeeds best in the vicinity of Boston, and most generally cultivated. We were informed that about 30 acres were under the plough the present season. Besides Indian corn, potatoes and English grain, Mr. Phinney cultivates the root crop extensively. His ruta bagas, mangel wurtzels, sugar beets and carrots looked very promising, and will afford an abundance of food for his numerous family of swine and other stock.

In draining his low lands, Mr. Phinney first cuts off all springs from the surrounding hills, by a deep cut at the margin or outer edge of the piece, which is converted into a blind ditch: from this most important cut, the drains are made to the centre ditch. Where there is an abundance of stones, as in this case, all the drains may be filled and covered over, so that the operations of the plough, &c. may not be impeded. We were shown one piece over which it was dangerous for his cattle to pass, and in which they sometimes got mired, before he commenced the draining process; here his first essay on draining had been made, in which, through inexperience, he cut only the centre and cross drains, but with all he did, it would produce nothing but skunk's cabbage, hellebore, brakes, &c. and it seemed that all his labor had been lost, until he learned the importance of the ditch around the margin, which produced the desired effect, and now it ranks among his most productive grass lots, and a loaded team may be driven without difficulty over it.

We were pleased with his system of digging peat, of which he has ample an supply. Where peat is generally dug, the grounds are left in the roughest state, and present an unpleasant and unsightly appearance, and remain an unproductive waste: but it is his rule to have the top spit, a depth of ten inches or a foot, (the portion unfit for the fire,) thrown over and levelled as the work of digging proceeds: in this way it soon becomes covered with grass, which answers very well for stock hay.

One peculiar feature of this farm is the massive stone walls by which it is enclosed and divided. It would seem a Herculean task to build the wall that has been put up under the care of the intelligent proprietor. In the measurement of the length of wall upon the farm, we may safely say there are miles of it—we know not how much there may be—on this subject we are not in-

formed—one piece of considerable length, is 10 or 11 feet thick, 7 feet high, and covered with grapes, which have been set out on the south side of it; a fine native variety found on the place. The vines were loaded with fruit, and bring by the quantity from 8 to 10 cents per pound; we should judge there might be a ton of them. All the other walls are double, from 5 to 10 feet thick and 5 to 6 feet high, and must have consumed an enormous quantity of stone. We noticed grapes upon many other portions of wall.

The orchard on this farm is equal if not superior to any we have seen. It contains from 400 to 500 trees, principally Baldwins, Russets, and Rhode-Island Greenings. It produced a very abundant crop last year, but this year there is scarcely an apple upon it. It was planted somewhere about 14 or 15 years since. The soil is generally a light rich loam, upon a gravelly, and in some places, a rocky foundation. The trees were taken from the nursery in autumn, and placed in trenches until the following spring. They were planted near the surface, and in many instances, upon the surface, without digging any holes, and the dirt placed upon the roots. The orchard is situated on a side-hill, having a south and southeast exposure. Many of the trees were severely injured by the hard winters of 1835 and '36, which caused the destruction of some of them. Their places have since been supplied with young trees. The mice injured some of the trees a number of years since, by gnawing the bark, so that in some cases the trees were completely girdled, and to all appearance lost. An ingenious method was devised to save them. Having prepared some large scions, five or six of them were inserted in each tree, below the wounds in the bark, and then connected with bark above by the common operation of side grafting; in this way the sap was conducted from the roots to the top, and the trees saved. We saw some of the trees thus operated upon: the scions had increased to the diameter of three or four inches, and had nearly come in contact with each other; we should doubt, however, whether the trees would be long-lived, as the old wood must be unsound, and an early decay must be the consequence. The trees appeared now as vigorous as any of their neighbors. The orchard has never been laid down to grass, but kept in constant cultivation. The trees are finely shaped, having been pruned with a skilful hand, and just high enough from the ground to work under without inconvenience: the trees are about two rods apart: in some places they nearly cover the ground. We do not remember how many barrels were gathered for the market last year, but the quantity was great. Besides this orchard, there is another that has been set out only two or three years, of 200 or 300 trees, all of which are sweet apples, designed expressly for the swine. All the refuse apples are fed to the hogs, and considered much more valuable for that use than for cider.

The farm is abundantly stocked with pears, plums, peaches, grapes, &c. There are more than 2,000 fruit trees of various sorts upon the place, and all have been reared and pruned by the hand of the proprietor himself.

One of the most pleasant sights is a trellis 30 rods in in length, covered with the Isabella grape, from which was gathered last year two tons of grapes, which found a ready sale in Boston market at 10 to 12 cents per pound. The crop was said not to be so heavy this year, but to us it appeared very great. There is also a small house where the more delicious foreign grapes are grown.

The plums had suffered severely from the curculio, and most of the trees had lost their fruit. There is a disease upon the currant bush, which we have noticed in many other places as well as on this. The bush loses its leaves prematurely, and the fruit becomes withered and worthless. We have in vain sought for the cause. Can any of our readers inform us, and prescribe a remedy? The vegetable garden is large and well stocked with every variety: what is not consumed in the family is marketed or fed to the swine.

Mr. Phinney has taken great pains to improve his breed of swine, and probable there are none superior in the state. As we have a promise from him of a description of his pigs and piggery for the N. E. Farmer, we shall not enlarge upon this subject. He prefers a cross of the Berkshire and Mackey to any other, and most of his pigs for slaughter are of this description. He has the full blooded Berkshire, Mackey and other breeds, and mixes to suit himself. We noticed a sow lately imported from England, called the Essex half black: the hinder part of the animal is jet black, and the forward half white. There are some good points about her, and she may prove a valuable acquisition to his stock: not having recovered from her sea voyage, she does not appear now as she will after a few weeks of good keeping. There is an old sow here, quite an object of curiosity, (we do not recollect the breed,) that weighs 900 lbs. a monstrous overgrown animal; she had been turned out of her pen to enjoy her liberty a little, which she did not, however, seem to appreciate much, as all the room she wanted appeared to be enough to turn round and lie down upon. She looks as though she might be the parent of a most numerous offspring, but we understood she was without issue, having apparently no inclination to form an intimacy with the other sex. The number of swine is about 140, the care of which employs one man constantly.

The barns and other buildings for the accommodation of stock, are convenient and comfortable, with sufficient room for the hay and grain produced on the farm.—About 100 tons of hay are cut annually, part of which is sold. For every ton of hay sold, one cord of manure is purchased. To improve the land and keep it in high tilth, it is necessary of course to manufacture a large amount of manure. This is first done by the hogs. The man who has the care of them is constantly employed at odd hours in furnishing them materials, such as meadow mud, peat, weeds, &c.: second, by sheep: in autumn 150 or 200 wethers are purchased from the droves, and fed through the winter: by March they are in good flesh and bring a high price, and pay well for their keeping; their yards being furnished with plenty of mud and litter, when mixed by their excrements makes a rich compost: third, by the other stock and the manure purchased, which is carefully mixed with twice the quantity of meadow manure. One cord of this composition is considered about equal to one cord of stable manure alone.

In making our observations upon this place, we feel as if it was not in our power to do it justice, as we spent but a few hours upon it. Every part of it shows, that by science, industry and skill, it has been rendered worthy of being ranked among the first of well cultivated farms in New-England, and its proprietor worthy of all praise for the laudable example he has set for the imitation of his agricultural brethren. J. B.

On Bones as a Manure for Turnips.

[*From the Farmers' Magazine.*]

Sir—Seeing in your excellent periodical, *The Farmers' Magazine*, several opinions respecting the efficacy of bones as a manure for turnip land, some stating its beneficial effects to have been astonishing; while others assert, and with equal truth, that from trials made by them, no benefit whatever has resulted from their use, it would seem very difficult to account for this difference of opinion, more especially when trials have been made by intelligent and practical farmers for several years. Those who found it beneficial, continued its use; while others, who, upon trial, experienced the reverse, gave it up as not answering their purpose, without further trials or further investigation as to the cause, why it is not beneficial to the crops on all soils. Now, if its salutary effects are as stated by its advocates, it must surely be worth inquiry, and ought to be investigated by scientific men, who would render a lasting benefit to the farming interest, by showing on what soils it could be used with advantage, and also those soils where its application would be nugatory. This would save many from a heedless expense and a consequent disappointment in the crop.

It appears, by an article in your number for June last, that an excellent lecture had been delivered, at the Woodbridge Literary Institution, by a Mr. Webster; in the course of which he alluded to the merits of bones as a manure, and briefly described a method whereby their adulteration might be detected; and this adulteration may be done in various ways, and for very different purposes, and appears to me to be a main cause, though not entirely, why on some soils they succeed well, why on others partially, and why again on others a total failure.

As it is necessary, for the investigation of this subject, that the component parts of bones should be understood by every one interested in their use as a manure, I beg to submit, for the benefit of those of your readers who may have not seen a better, an extract from an analysis by that eminent chemist, Mr. Hatchett. He says—

"The component parts of bones are chiefly four, viz. the earthy salts, fat, gelatine, and cartilage.

"The earthy salts are three in number—

"1. Phosphate of lime.

"2. Carbonate of lime.

"3. Sulphate of lime.

"The proportion of fat seems to vary from one-sixth to one-fourth of the weight of the bone."

Annexed is also a table, calculated from experiments made from bones, both of the human species and also from various animals (by the same chemist):—

100 parts contain of the	Gelatine.	Phosphate of Lime.	Carbonate of Lime.	Loss.	Total.
Human,.	23	63	2	2	100
Horse,..	9	67.5	1.25	22.25	100
Ox,.....	3	93	2	2	100
Sheep,..	16	70	0.5	13.5	100
Swine,..	17	52	1	30	100
Calf, ...	25	54	...	21	100
Elk, ...	1.5	90	1	7.5	100

This it appears, that the bones of the Human species and of the calf afford the most gelatine, and those of the ox and horse the least except the elk.

The gelatine, the most beneficial portion to the land, is also an important ingredient in making portable soups, and also in the manufacture of glue; and there can be little doubt that, in most cases, the gelatine is, with the fat, extracted from the bones, by boiling or otherwise, before they are sent to the mills to be crushed the manure. The weight of the gelatine is about one sixteenth of the bone.

Thus the bones, after the gelatine and fat have been extracted, are divested of their most enriching properties, and little remains but lime, which on some soils will do good, but not to the degree it ought, and on others none at all; and, as Mr. Webster observes in his excellent lecture, that "the farmers can purchase that in great abundance, and at a much cheaper rate." He is also of opinion, "that for every cwt. of bones carted upon the land in an unadulterated state, you have one-fourth hundred of flesh; and is not animal matter (he continues) the food of plants?" He also quotes, in corroboration of his argument, some experiments made by the late T. A. Knight, Esq. of Downton Castle, the eminent horticulturist, relative to watering plants with broth made from bones.

If we were to notice the great difference in the essential parts, by a reference to the annexed table, it might lead into an inquiry why the vast quantity of bones, imported from the continent a few years ago, were found so excellent in quality, and so stimulating in their effects.

Vast quantities of bones are collected in carts, from the butchers' shops in the metropolis, in their raw state, all the meat having been previously cut from them; these bones are taken to persons who, by roasting and boiling, extract from them every particle of gelatine and fat they contain; nothing then remains to benefit the land but the cartilage contained in the earthy salts. By the above process, a great quantity of nutritious food is extracted for the service of man, and other purposes connected with his comfort and advantage, and consequently to the general advantage of the public: and although there is nothing to regret that their essential parts are extracted for such valuable purposes, still we must not be surprised that bone manure is found, in many cases, deficient in its fertilizing effects upon the land, and often disappoints the sanguine expectation of the industrious cultivator. I remain, sir, yours, &c.

THOMAS JOY.

On Influenza in Sheep.

[*From the Veterinarian.*]

TO THE VETERINARY MEDICAL ASSOCIATION.

GENTLEMEN,—You having been pleased to elect me one of your corresponding members, renders it almost imperative that I should attempt some return for that distinguished honor. As an humble member of the veterinary profession, I am willing to contribute the little that I am able towards the advancement of our common science; and therefore I venture to lay before you a few observations on the disease to which sheep are liable in this locality, and which is often attended with considerable loss to the grazier.

The treatment of cattle and of sheep is a division of our art by many contemned. Such, perhaps, have not resided in districts that have called forth the energies of their minds; nor have they seen the ravages which disease often produces: had they, I feel assured that the comments which from time to time are made, would be thought unworthy of scientific men, and especially of those to whom the health of our domesticated animals should have been, and even now is, in a great measure entrusted. There are many cogent reasons why instructions should be commenced in good earnest at our *alma mater* on this division of our art; but, as the full consideration of this would lead me into a field of argument I am not, at present, desirious of entering on, I will leave it, and pass to the more immediate object of my paper; craving, however, permission to say, that I am glad to see that reform has been commenced. I feel assured that steps will be taken to ensure its progress, and to perfect the system. Thus, I trust, speedily and for ever will be wiped away a stigma which has been long attached to the profession of a veterinary surgeon in country practice. These are not days in which we can retrograde; but we must continue the onward march which has been so nobly begun, and to which the association lends its powerful aid.

The malady to which I refer is INFLUENZA IN SHEEP; at least I call it by this name, because it bears so great a resemblance to that disease in the horse.

The situations in which I have found it most prevalent, are the marshes near the sea. The land there is very good, but much exposed; there being no hedges nor inclosures for many square miles. Cases are most abundant during the months of March and April, and especially when easterly winds prevail. It generally attacks young sheep, such as are called *lambs hogs*, and almost always those that are in the best condition, and of the largest size.

To prevent repetition, I will give you an account of a flock of 180 that I attended, in April 1838, for these presented the general features of the many, and may therefore be taken as a type of all the other flocks which were affected. They belonged to a wealthy grazier, Mr. G. Curbets, residing at Croft, near this place.

It was on the 19th of April that I was first desired to attend them. On my arrival, I found seven or eight dead. They were observed to be ill on the day previous to my seeing them. There were eight more that could not stand; and when lifted up, they had entirely lost all power of motion. On examining the remainder of the flock, I found some scarcely affected at all, while others were gradually going on in the same way as those that had died.

The first symptoms exhibited were, dulness of countenance, and a disinclination to join the rest of their companions, or to look out for food. They soon became more dull; a thin mucous discharge made its appearance from the nose and eyes, the tissues being highly injected; the ears drooped; a grating of the teeth was heard; and a staggering gait evinced in walking. As the disease advanced, all the above named symptoms became more manifest. The animals were able to walk at a slow pace, but if urged into a quicker one they would fall down on their knees, and then on their sides,

throw their heads back, and grate their teeth as if in pain. After lying a few minutes they would get up again, although with difficulty; and their manner of walking in this stage of the disease very much resembled a horse laboring under inflamed laminæ. When the disease had been allowed to run on to this height the sheep often became affected with spontaneous diarrhœa, the fæces appearing to come away involuntarily. Those that did not purge, usually voided much mucus encoating the dung.

After this they quickly became worse: they would lie perfectly still, as far as the limbs were concerned, but they continued to grate their teeth, and a rattling noise was heard in the windpipe, accompanied by a frothy discharge from the mouth and nose, and an occasional cough. To this death succeeded in a few hours.

The post-mortem appearances were very unsatisfactory, as no particular part appeared to be more affected than another by the disease. On examining the windpipe the lining membrane was found to be slightly inflamed; the bronchi contained a frothy kind of fluid; the substance of the lungs was a little engorged, but this was not invariably the case; the lining membrane of the chest was also sometimes a little tinged, and most altered in character about the sternum and cartilages of the ribs; the heart appeared quite healthy, as did the abdominal viscera, except the peritoneal and mucous coats of the small intestines, which were now and then tinted with an inflammatory blush.

Generally speaking, if any part more than another could be said to have taken on active inflammation, it was the kidneys, these organs being not uncommonly found discoloured in their emulgent portion, but nothing like approaching mortification. The tubular part was also a little darker than natural, and easily broken down by the fingers; but the pelvis had not undergone any structural disorganization. The urine appeared to have been naturally secreted, and the coats of the bladder were healthy; but sometimes this viscus was distended more than is usually found. The brain presented no abnormal appearance. Such were the lesions observable on the examination of several of them.

The treatment I pursued with those which could not stand, was first to place them under a shed, with plenty of dry straw to lie upon. To those affected with diarrhœa, astringents were administered, such as catechu, chalk, &c. combining them with an aromatic tonic and the spiritus etheris nitrici: while to others that were constipated in the bowels I gave a gentle laxative, following it up with a vegetable tonic. This course of procedure appeared to be attended with benefit; for, out of the eight that could not stand, four recovered, and were able to provide for themselves in two or three days. After the exhibition of the medicine to the diseased, the remainder of the flock was removed into as sheltered a situation as could be found; or sheds were erected for them, with plenty of dry straw to lie upon. A liberal diet of oats and hay was allowed, while their general comfort was as much attended to as possible. To many that gave indications of the approach of an attack of the malady, a laxative and a tonic combined was given.

On April 21st, the sheep were not only looking better, but had very materially improved. The above-mentioned treatment was continued, with occasional variations, according to the circumstances of each case; and in five or six days they were all out of danger. I am happy to be enabled to say, that after this there were not more than two or three sheep out of the flock in which the prostration of strength became so great as to render them unable to stand; and I would add, that I never knew one case to recover without the aid of medicine, after the disease had existed so long as to produce this loss of power. I am, &c.

Vegetation—*(Concluded.)*

The sap ascends to the leaves, where it undergoes certain alterations, and is converted into the peculiar juices, which like the blood in animals, are afterwards employed in forming the various substances found in plants. Great part of the sap when arrived at the leaves, is thrown off by evaporation, by means of particular organs. What remains must be very different in its proportions from the sap. It is performed chiefly by the upper surfaces of leaves.

Leaves have also the property of absorbing carbonic acid gas from the atmosphere, and have been supposed to exhale much pure air. Hence they have been universally deemed highly useful, when planted near a house, but though useful as a source of shade, yet the following observations will shew that their benefit does not depend upon the supposed addition of pure air, derived from them, to the atmosphere.

The air of the atmosphere, according to the most celebrated chemists, is composed of twenty-two parts of oxigenous gas or air, and seventy-eight parts of azotic gas. There is a constant consumption of the oxigenous portion of this air, by the burning of combustible bodies; by the respiration of animals; by the fermentation and putrefaction of vegetable and animal substances; and by the calcination of metals. The oxigenous gas, decomposed by respiration and combustion only, in the city of London, is supposed to amount to the enormous quantity of five millions cubic feet an hour. (NICHOLSON'S *Philosophical Journal*, vol. v. p. 184.)

The atmospheric air of Great Britain, France, of parts of Africa, and of America, has been examined by philosophers, and has been found to be exactly of the same degree of purity.

The oxigenous gas contained in it, is in the same proportion, at all times and in all places, in rainy or in dry weather, in depth of winter, and in the middle of summer, on the land and on the ocean, in the crowded city and remote village.

In consequence of a most valuable discovery, made by the illustrious Dr. PRIESTLEY, that growing vegetables under certain circumstances, exposed to the light of the sun, yield oxigenous gas: an opinion has been adopted, that they are the sources of the oxigenous part of common air.

This sentiment has been adopted by the chemists of all nations, but has been controverted by Dr. JAMES WOODHOUSE, formerly professor of chemistry in the University of Pennsylvania. (NICHOLSON'S *Philosophical Journal*, June, 1802.)

The Doctor reasons in the following manner.

1st. He says, whenever oxigenous gas has been obtained from vegetables, carbonic acid, (or fixed air,) has been present. Upon reviewing the experiments of Dr. PRIESTLEY, he finds that this circumstance has actually taken place. The Dr. exposed plants to the influence of light, in atmospheric air, in which spirit of wine, and wax and tallow candles, had burned out; to air which had been vitiated by the death or putrefaction of mice and fishes; and to air which had been frequently taken into his lungs; and found that the purity of the air, was in every instance restored. PRIESTLEY on Air, vol. iii. p. 247 to 347.

In all these cases carbonic acid, (which is composed of carbon and oxygen) was formed; the vegetable devoured its coal for food, by which means its oxygen escaped, in the form of pure air.

2dly. The seeds of Zea mayz (Indian corn,) of *apium petroselinum* or parsley, of *lactuca sativa* or lettuce, of *cucurbita citrullus* or the water-melon, of *phaseolus sativus* or beans, and of *raphanus sativus* or radishes, were planted in earth, and made to vegetate in atmospheric air, confined over water in vessels of white glass, and exposed to the action of solar light. This air, when examined at various times, was found to be reduced in purity, and when its oxigenous portion was completely absorbed the plants died. Its oxygen united to the coal of the cotyledons of the seeds, or to that of some animal or vegetable matter contained in the earth, in which they were planted, or to that of some decayed portion of the living leaves, and formed carbonic acid, quicker than the living plant could decompose it. To these experiments, we may add that the celebrated and accurate SCHEELE observed that beans growing in atmospheric air, always rendered it impure.

3dly. Young plants of *datura stramonium* or Jamestown weed, of *phytolacca decandra* or the poke, of Zea mayz or Indian corn, &c. growing in earth, were exposed to solar light in from forty to eighty ounce measures of atmospheric air, which was examined at various times, from one hour to thirty days after the plants had been placed in it. Carbonic acid gas was generally formed, and whenever this circumstance happened, the purity of the air was diminished.

When a plant in perfect health, growing in a soil which contains little vegetable or animal matter, is confined in atmospheric air, it will live a long time without producing any change in it. Many of the vegetables which were the subjects of these experiments, did not affect the air in five days; some diminished its purity in three hours, and others altered it in a most slow and gradual manner, causing little change in it, in 20 days.

4thly. Many of the same kind of vegetables were also confined in forty ounce measures of oxigenous gas, which had been well washed in lime water, and the purity of this air was very generally lessened, carbonic acid being formed.

5thly. A small handful of the healthy leaves of a variety of plants, containing no decayed parts, were exposed during four, six, and eight hours to the influence of the light of the sun, in atmospheric air confined by water, and its purity was found to be neither increased nor diminished.

6thly. The leaves of various vegetables gathered promiscuously, exposed in the same manner, generally diminished the purity of atmospheric air, several degrees.

7thly. A handful of the leaves of several hundred different plants, among which may be mentioned, those of the apple, pear, peach, poplar, fringe, and persimon trees, were separately exposed during several hours in glass vessels to solar light, in forty ounce measures of pump water, and from five to nineteen drachm measures of oxygen air were produced in each vessel. Upon analyzing the water, it was found to contain carbonic acid, with which it had been impregnated from a necessary, which stood within a yard of the pump.

8thly. The leaves of 13 different plants were separately exposed in the usual manner, in forty ounce measures of the water of the river Schuylkill, and about ten drachm measures of air were procured, the principal part of which was azotic gas, which was disengaged from the water. No carbonic acid could be detected in the water of this river.

There are three wooden bridges erected over the Schuylkill, which rest upon large wooden logs, upon which great quantities of a species of conferva grow, and which is covered by the water. Upon viewing this vegetable when the sun shone upon it, for several hours, at different times, for several years, no air could be seen to form upon it, or to rise through the water.

9thly. The leaves of the same vegetables were exposed to light, in the same manner, in the same river water, impregnated with four quarts of the water, saturated with carbonic acid, from the carbonate of lime and the sulphuric acid: and 77 drachm measures of oxigenous air of a very high degree of purity, were obtained.

10thly. No oxigenous air could be procured by exposing vegetable leaves in boiled, distilled, rain, or lime water; a proof that they do not decompose water.

11thly. Atmospheric air was impregnated with carbonic acid gas, and a handful of the leaves of nine different vegetables were separately exposed in it, to light, seven hours. The fixed air disappeared, and the atmospheric air was greatly increased in purity.

12thly. The limbs of trees covered with healthy leaves, and some vigorous evergreens growing in their natural soil, were confined from one day to a month in atmospheric air, over water, and exposed to light, and its purity was never found to be increased, but was generally considerably diminished.

These experiments incontestibly prove, that whenever oxygen gas has been obtained from vegetables, by exposing them to the influence of solar light, carbonic acid has been present, and that it is from the decomposition of this gas, that the pure air is obtained.

As it is acknowledged that the leaves of plants separate the oxygen from carbonic acid, it may be said, that the oxygenous portion of atmospheric air is supplied by the decomposition of gas, as it is always found in the atmosphere. The quantity of carbonic acid, accidentally diffused in atmospheric air, (for it is not of its component parts) is reckoned to be about one part in an hundred. It must however vary in different places. We would expect to find the most of it in cities, where it is formed by combustion, respiration, fermentation and putrefaction. If one measure of the air of any great city, be passed up over lime-water, in an eudiometer, no carbonate of lime will be formed; so that the quantity of carbonate acid in this air, must be extremely small. As this gas is also seized upon by alkalies, earths and metals, and absorbed by water, the proportion of it in the atmosphere, may be less than one part in ten thousand.

When we consider likewise that the oxygen is never separated from the carbonic acid by leaves, but when they are exposed in contact with it to the light of the sun, and that every perforation made in a living leaf, however minute, by an insect, causes the part to decay, and absorb oxygen by day and by night; and that in the autumn, in some countries, all leaves fall on the ground, ferment and putrify, and thus diminish the purity of common air, and that the petals and fruit of vegetables have the same effect, we must pronounce, that the oxygenous portion of atmospheric air cannot be supplied by vegetation.—*Domestic Encyclopedia.*

Bees.

[*From the New-England Farmer.*]

MR. COLMAN.—We wonder every body does not keep bees, such active beings as they are and so liberal in dispensing "the sweets of life." Yet we are glad they do not, for if they did, even though they had a "small beginning," they would at length become so numerous that sad consequences might result. This we have found to be the case to our cost, for in the spring of 1833, we established a colony, which, as there were none about us, did very well, and our success excited others to embark in the same enterprise, so that in two years they were "as thick as bees" through the neighborhood and town. The consequence was, all the bee pasture in the community was overstocked, and the long, severe winter which followed put an end to all our anticipated sweets, inasmuch as that there was scarcely a hive remaining in the circle of our acquaintance, whose inhabitants could be numbered among the living. We might have saved ours in a way which we shall speak of soon, but they had a usual supply of honey and we did not expect an unusual winter.

Last spring, we obtained a hive and began again.—Maugre the cold wet May and June, we have obtained three swarms from it, the hives of two of which are very heavy and the third in quite a winterable condition. Our first swarm came off about the middle of May, and lit on a current bush, consequently we had no trouble in hiving it, but the second which came off only a few days later, displayed an obstinacy worthy of the human species, for they lit on the body of a beautiful maple on one side of our yard, just at the place where the lower branches put out. We tried almost as many devices to get them off as the "old man" did to drive "the rude boy" from his apple tree and with no better success; we jarred the tree, but we could not jar them off; we tried to brush them down, but to this they objected; we confined a hive to the tree, and wound a cloth around it and them, hoping to lure them to a domicil in this way, but they had no more ambition to climb, than propensity to descend. We however secured them where they were in this way, for that day and the coming night, which brought the elements to our aid in the form of a "hoarse north easter" cold with wind and tolerably charged with rain, which two qualities united so benumbed the physical faculties of our truant friends, that we could dispose of them as we pleased; we accordingly with all care took them down and placed those which possessed animation in the hive, while the remainder we protected from the storm, and on the first sunny day laid them out *to dry*. Most of them revived and joined their family, but their tranquility was of short duration, for in consequence of their exposure, a dysentery attacked some of the community, and those in health, in-

stead of remaining to protect the weak and heal the sick saw fit to decamp, and after enjoying a healthful sailing excursion in the air they went to the hive in which the first swarm had been put. Their stay there was not very tedious, for in a week or ten days and instead of aspiring to the trunk of a choice shade, at ten feet from the ground, their "meek and lowly spirits," led them to cluster on a raspberry bush but a few inches from the surface, from which they were taken and put in a condition satisfactory to themselves, as their quietude and thrift fully attest.

Our last swarm came off in June, and notwithstanding the old adage that "a swarm in June is not worth a spoon," we should refuse an offer of two spoons for this, and more unless they were very nice and very heavy. True, the quantity of honey which they have gathered is not very great, but with our way of managing such hives we think amply sufficient for their supply. We propose burying them, through the winter, a practice which we have adopted in two successive years, and had we continued it the third, our old colony instead of coming to an untimely end, would probably have been in existence now through its descendants.

My method of burying bees is as follows. The operation is performed the last of November. The pit in which they are to be placed is dug considerably larger than the hives, in every respect. On the bottom of the pit two sticks, say of scantling four inches square, are placed that a cavity may be left into which the water if there is any may settle and run off without injury to the bees. On these blocks I lay my floor board, which should be *sound* and full an inch thick, if more no matter.—The top of the hive should be covered with a two inch plank, or if more convenient, a piece of wide thick slab with the rounding side up, so that if the frost comes out, and heavy rains fall, it may serve as a roof to carry the water from over the hive and turn it into the pit below. Straw is then placed as compactly as may be around the hive and the earth thrown on so as to form a cone above it, which again operates as a roof to turn the water as it falls. With regard to the depth of burying we can only say, that in our former experiments, we never sunk the top of the hive below the surface.—Whether it would be well to do so we cannot say. Some when burying their bees, drive down a stake near the hive as they say to admit the air, but we do not see why a stake drove down with the earth compactly placed around it, can form an air hole more than the earth itself. And if it could, we do not see the necessity of it, for the object of burying bees, is to put them as much as may be in a state of dormancy through the winter, by which their stock of provisions is lengthened out, to secure them from sudden and often fatal changes from heat and cold and from storm and sunshine.

In selecting a place for burying, it is important that a *dry* one should be chosen; and *we* prefer one that is cold to a warm one; and could we regulate the condition of the earth around them, we would freeze it the night after their burial, and *keep it frozen* until time for their exhumation in the spring.

We in both instances of our former burying, took them up some of the last days of March, and all the dead we found from the four hives thus kept would not half fill a person's hand, and on exposure to the sun and atmosphere the living were as bright and lively as though they had known no winter, and they gave swarms earlier and more frequently than did the hives that were not buried the ensuing summer.

We have thus far kept only the old fashioned square hives, but intend during the coming winter to have some manufactured after the Griffith and perhaps other plans. We shall do so, not that we have any particular objection to the square hive, but in order to profit by improvements in the article; and to do this we wish to give each variety a trial.

Our hives have uniformly been made of pine boards, and put together in the closest manner possible, after which we have spread a salve made of beeswax, tallow and rosin over the joints within and without. This wax gives the hive an odor very pleasant to the bee, in consequence of their wax being a part of its composition. It also closes the small apertures which are most always to be found in bee-hives against the invasion of the miller, one of the most formidable enemies to bee culture; and where the hives stand out, as they often do, it prevents the storm from beating through openings, which if no preventives be employed, are always increasing in size. Any sweet wood is undoubtedly good for hives, but economy and durability should be consulted in their manufacture as well as every thing else. Hence the cheapest material that can be used, with the approbation (we can do nothing without this) of those who are to inhabit them, should be. Basswood is cheap and sweet, and we know not why a basswood hive, kept sheltered, would not last for ages. To secure its durability it may be planed on the outside and painted, and we know not why the industrious bees would not enjoy a neat white house, and are not as worthy of such a one as many *biped drones* who inhabit them. We think the practice of placing boxes on the hives for obtaining honey a good one, especially when the swarm is thrifty. After the proper season of swarming time is passed, the box may be placed on the hive and prevent future swarms from coming out; and in this way the increase of bees may be saved in the old hive, where there will be honey enough for them, and new swarms come off *earlier* the next season, while as much honey may be obtained from the box as the late swarm would collect, without the sacrifice of their lives. The honey thus obtained is of the purest quality. The aperture in the top of the hive through which they pass to the box should be closed when the box is removed, and remain so until it is replaced the next summer.

Bee pasture. The man who turns his herds or his flocks upon their own resources for a subsistence, can expect but little profit from them, unless they become highway robbers, (and then the partaker is *worse* than the thief) and enter his neighbor's fields and spoil his crops. Though we have no idea that a community of bees can be restrained by fences, pokes or fetters, yet we do think that their rambling propensities may be checked. The facilities of their labor increase their enterprise, and the *endearments* of their *home* made still *more* dear by—we should have said cultivating flowers for their benefit, but this would sound *weak* to the ears of some *strong minds*, so to such we say *allowing* them to grow.

But the ladies admire flowers—so do *gentlemen*, therefore we have no hesitancy in recommending their culture, especially when so many objects of utility demand it, as in the present case. The mignionette is a beautiful little flower, and when once sown will keep itself in, if the ground is kept clean. It continues blossoming very late, its fragrance perfumes the atmosphere agreeably, to a great distance, and bees are as fond of it as we are of honey. The raspberry and bramble flowers are favorites with them, and we never heard a person say that they did not like their fruit, so *they* should be set plentifully in the garden and *cultivated*, that they may, *at home*, produce an abundance of flowers for the bees and fruit for man. The strawberry too, that we unitedly love so well, should always be found growing for our mutual benefit in our common gardens. The poppy, though somewhat calculated to lull the drowsy faculty of man to repose, possesses not the least lethargic quality to them, but in the reverse arouses their faculties. Catnip not in mints or juleps, but in blossom, they much admire. We too have tested the efficacy of its healing qualities through strong portions of its tea.

Yours truly, W. B.

Mount Osceola, Oct. 4, 1839.

[*From the (Va.) Farmers' Register.*]

Carelessness in Saving Silk-Worms' Eggs.

Stafford, Aug. 5th, 1839.

To the Editor of the Farmers' Register.—I am highly gratified that you have given the agricultural community a caution about silk-worm eggs. At least two-thirds of the failures in rearing silk-worms in this country may with propriety be attributed to bad eggs. Many persons raise silk-worms for the *sole* purpose of speculating on the eggs, and are probably not aware of the necessity of careful management to procure good eggs. Prevailing thoughtlessness on this subject, which I know exists extensively, if not checked, will throw serious obstacles in the way of this important culture, which I firmly believe is destined to repopulate the poor land districts in Virginia and Maryland. I will add a caution which may be of service to the inexperinced. If the cocoons intended for seed are thrown into a heap, and permitted to remain for several hours, when the weather is warm, the eggs produced will generally be worthless. I know this to be the fact from dear-bought experience.

"When silk-worms are to be raised, the eggs to be procured from the cocoons, must be thought of before anything else. Now-a-days when the cocoons are collected, it is the custom to keep them altogether upon the frames. Some persons not having time to reel all their silk, butterflies are seen to go out and lay eggs almost immediately. The accumulation of cocoons produce a kind of fermentation, and the heat causes the butterflies to hatch before the proper period. This premature development has never any good results, for the butterflies are sick; and from thence it comes that the silk-worms produced from their eggs, are affected by diseases from the moment of their hatching.

"The cocoons for reproduction ought to be separated, *and put in a well aired chamber*, and spread upon very clean mats, *a layer of the thickness of a single cocoon only.*" (*Chinese Treatise, published by P. Force, p.* 150.)

I have about 40,000 silk-worms of seven varieties.—They are remarkably healthly, and a large portion of them spinning in handsome style. Respectfully yours,

LAYTON Y. ATKINS.

P. S. There is no advantage to be derived from a forced and premature development of the silk-worm in any of its stages. The nearer the time of spinning to the natural period of its life, as stated by Dandolo, the better. The *precocious* and the *tardy* are always feeble, and eggs should never be saved from them. I have made nine rearings of the "two-crop" white, and of the cocoons formed between the 25th and 30th days it has required from 700 to 800 to weigh a pound, and so of the last which spin; but of cocoons formed from the 30th to the 35th day, 350 to 400 to make a pound. Depend upon it modern writers on silk-culture are promulgating a pernicious error on this point; and before the learned *silk-worm* doctors publish any more *infallible* prescriptions, I advise them to put on their spectacles and bring their remedies to bear on four or five cases.

If a *forced* and premature development is so important, what reason or sense would there be in the following passage from the Chinese Treatise:

"The moths which come out the first day are called *grass moths.* The last of all are called *mogno,* (that is to say, the last butterflies.) *Neither* of these ought *to be kept.*"

Mark the care of this people about procuring eggs. Cocoons are first selected, and when the butterflies come out, the *first* and the *last* are rejected. Let the people of the United States make numerous and careful experiments. We *beardless* boys of Virginia at least, do not mean to open wide our mouths and swallow nostrums as an unfledged bird does its food. L. Y. A.

To keep Sweet Potatoes.

[*From the Farmers' Register.*]

Some time last fall, as well as I now recollect, one of your Virginia correspondents asked for information upon the subject of keeping sweet potatoes through the winter; and perhaps the writer was desirous to obtain Virginia practice; but if our Georgia plan should not be altogether applicable to your region, (I know of no reason why it should not be,) your correspondent may derive some useful hints therefrom; and though I give our plan too late for any practical use the present season, it will, if at all, be of service the coming one. There are various modes adopted in Georgia for saving potatoes, but as the one I practise, in common with many others, has always been so successful, I shall describe that only. As soon as the frost slightly affects the potatoe vines in the fall, (about the middle of October here,) I begin to make preparations for digging; and by the time the vines become thoroughly killed, I am prepared for the harvest. I select an elevated piece of ground, and throwing up circular mounds or hills, twelve or fifteen inches above the common surface, the diameter of which should be about ten feet, to contain sixty bushels of potatoes. The situation and the elevation of the hills are objects of importance, to prevent the possibility of the potatoes getting wet. In order to make the potatoes lie on the hill the better, the edges should be some somewhat elevated by drawing the earth from the centre, giving it slightly the appearance of a bowl. Common pine heart boards are now placed on the earth, radiating from the centre to the circumference of the hill; and on these a layer one foot thick, of dry pine leaves. The hill being now ready to receive the potatoes, I select dry, mild weather, and commence digging in the morning, and stop time enough in the afternoon to haul up all dug during the day; for if left out at night, the frost, if any, would injure them. If possible, the hills should be filled and completed the same day, but if not, the potatoes should be well covered with straw to protect them at night, and uncovered next morning. When the pile becomes two or three feet high, place a pole horizontally across, of sufficient length to pass entirely through the sill. A better ventilator would be an oblong box four or five inches square, with several auger holes in it. The potatoes may now be put on till the pile is about five feet high, and left in a conical form. Next, procure dry pine leaves and lay them all over the potatoes, at least six inches thick. Pine heart boards like those used at the bottom of the potatoes, are now placed over the straw, and a covering of earth six or eight inches thick, is put over the whole and patted smooth with a spade. A small aperture should be left at the top of the hill, to assist in ventilation; or to be neater, a short oblong box may be inserted down to the potatoes, and the earth drawn nicely up to it. If a pole is used as the horizontal ventilator, the earth should be removed from below it, where it projects from the hill. All the apertures should be left open, for a few days after the operation is finished, and then only closed during severe weather, with a handful of pine leaves. Shelters should be erected over the hills to exclude the rain entirely. I consider it important to perform the whole business in dry weather. P. C. H.

Soiling Cattle.

Soiling is the feeding of cattle either in the barn or yard, through the summer, with new mown grass or roots.

The following are some of the advantages of soiling cattle over depasturing them:

"1. A spot of ground which, when pastured upon, will yield sufficient food for only two head, will abundantly maintain five head of cattle in one stable, if the vegetables be mowed in proper time, and given to the cattle in proper order.

"2. The stall feeding yields at least three times the quantity of manure from the same number of cattle; for the best and most efficacious manure is produced in the stable, and carried to the fields at the most proper period of its fermentation; whereas, when spread upon meadows or ploughed fields, as it is too common, and exhausted by the air and sun, its power is entirely wasted.

"3. The cattle used to stall feeding will yield a much greater quantity of milk, and increase faster in weight, when fattening, than when they go to the field.

"4. They are less subject to accident—do not suffer so much heat, flies and insects—on the contrary, if every thing be properly managed, they will remain in a state of constant health and vigor."—*Von Thaer.*

To Destroy Weevils in Granaries.

[*From the London Farmers' Magazine.*]

Sir—Seeing in your paper an inquiry respecting the destruction of weevils, I send a copy of a paragraph which has been cut out of some publication. It is as follows:—

"Accident has discovered to a French farmer a very simple mode of destroying weevils in corn warehouses; happening to lay in the corner of a granary in which there was a quantity of corn, some sheep skins with the

fleece on, he was not a little surprised to find them, a few days after, covered with dead weevils. He repeated the experiments several times, and always with the same success. At last he ordered his corn to be stirred up, and not a single weevil remained in it."

I remain, sir, yours,
A CONSTANT READER.

Young Men's Department.

Chemical Catechism—Chapter IX.

[*From Parkes' Chemical Catechism.*]

OF SIMPLE COMBUSTIBLES—*continued.*

What is the origin of PHOSPHORUS?

Phosphorus is a peculiar substance, both of animal(1) and mineral origin. It was formerly obtained by a very tedious and disgusting process; but is now generally procured by the decomposition of the phosphoric acid, which is found in animal bones.(2)

What is the nature(3) of phosphorus?

Phosphorus is a solid inflammable(4) substance, which burns at a very low temperature, when in contact with oxygen gas or atmospheric air; and, when thus saturated with oxygen, it forms a peculiar acid.(5) It may be easily cut by the knife, and melts at 90° of Fahrenheit. Its specific gravity is nearly twice that of water.

What compounds are formed by means of phosphorus?

Phosphorus may be combined with oxygen, hydrogen, chlorine,(6) sulphur, or with most of the metals,(7) and also with some earths.(8)

What is the nature of these compounds?

Phosphorus forms with oxygen, according to the proportion of the latter, either oxide of phosphorus, or phosphorous acid, except it be saturated with oxygen, and then phosphoric acid; with hydrogen, phosphuretted hydrogen; with sulphur, phosphuret of sulphur, and sulphuret of phosphorus; with the metals, metallic phosphurets; and with some of the earths, earthy phosphurets.

What is the origin of CARBON?

Pure carbon is found only in the diamond; but it may be procured in the state of charcoal, by burning a piece of wood closely covered with sand, or any other convenient material, in a crucible, so as to preserve it from the action of the atmosphere.

What compounds are formed by means of carbon?

Carbon is capable of forming various combinations: it unites with oxygen, hydrogen, nitrogen,(9) sulphur or phosphorus, and with iron.

What is the nature of these compounds?

Carbon, with various doses of oxygen,(10) forms carbonic oxide, or carbonic acid; with hydrogen and caloric, carburetted hydrogen gas; with nitrogen and caloric, carburetted nitrogen gas; with sulphur, sulphuret of carbon; with phosphorus, phosphuretted carbon; and with iron, plumbago, or carburet of iron.

Some of these compounds having been already examined, it will now be expedient to consider the other states and combinations of carbon; therefore, what is charcoal?

Charcoal, which is the combination with which we are the most familiar, is the coaly residuum of any vegetable substance that has been burnt in close vessels.(11)

What are the characters and appearances of charcoal?

Charcoal is generally black, sonorous, and brittle; very light, and destitute of smell.(12)

What are the properties of charcoal?

Charcoal is a powerful antiseptic;(13) when ignited, it has great affinity for oxygen;(14) is unalterable and indestructible by age;(15) is a non-conductor of electricity, and a bad conductor of heat; and if air and moisture be excluded, is not affected by the most intense fire.

To what uses is charcoal applied?

In the preparation of gunpowder, charcoal is a most important ingredient; it is also employed in purifying rancid oils, and abstracting the color from sirups and many other valuable preparations; for decomposing the sulphuric salts, which it effects by absorbing the oxygen of their sulphuric acid and liberating the sulphur; and for so many other purposes, by the chemist and the manufacturer (16), that it would be impossible to enumerate them.

Is charcoal a simple, or a compound substance?

Common charcoal is a compound substance: it is an *oxide* of carbon, or the woody fibre partially oxidized; it also contains hydrogen, and a portion of fixed alkaline salt and some earth, but these are rather adventitious than essential ingredients. (17)

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(1) The real origin of phosphorus is very obscure: some have supposed it to be a product of the process of animalization, and several curious facts might be adduced to strengthen this opinion.

(2) Phosphorus was accidentally discovered at Hamburg, in 1669, by an alchemist of the name of Brandt, in his search after gold; and two years afterwards, one Kraft brought a small piece of this substance to London, on purpose to show it to the king and queen of England. Mr. Boyle afterwards discovered the process, which he described in the *Philosophical Transactions* for 1680, and in a little book which he published in the same year, entitled *The Aerial Noctiluca.* Mr. Boyle instructed Mr. Godfrey Hankwitz of London how to procure it from urine, so that he was the first who made it for sale in England; and he continued to supply all Europe with it for many years. I have in my possession a scarce portrait, by Vertue, of this chemist in the midst of his laboratory, surrounded by his chemical apparatus; the form of which shows that even at that time they had the means of accurate analysis, if they had had a rational theory to direct them. From a Latin inscription, it appears that he had this print engraved to present to his customers on his taking leave of them, when about to enter upon his travels abroad to sell phosphorus.

The discovery of phosphorus proves that valuable discoveries may be made even by men who have no means of appreciating their nature. Stahl maintained that it was the *marine salt* contained in urine, which yielded phosphorus.

(3) Phosphorus, when taken internally, is poisonous. It is related in the *Annales de Chimie*, that a great number of domestic fowls and turkeys were poisoned, merely by drinking the water in which some newly made phosphorus had been washed. Though poisonous, it has been given in *small* quantities by some French physicians, in malignant fevers, to stop the progress of gangrene, in which it succeeded beyond all hope. (Nicholson's *Journal of Philosophy and Chemistry*, vol. iii. page 85.)

(4) If a piece of phosphorus be placed on the surface of water, a little below the heat of boiling, it will immediately inflame. This is one characteristic of phosphorus, and distinguishes it from all others substances. It melts at the temperature of 90°, and takes fire at about 148°.

(5) Phosphorus is used in forming phosphoric acid, in various chemical experiments, and in making phosphoric match bottles. These bottles may be prepared by mixing one part of flour of sulphur with eight of phosphorus. When used to procure light, a very minute quantity is taken out of the bottle on the point of a match, and rubbed upon cork or wood, which produces an immediate flame.

Phosphorus should always be handled with great care, lest any part of it get under the finger nails, a small portion of which might occasion great inconvenience.

(6) Sir Humphry Davy has formed two compounds with phosphorus and chlorine; the one is a white powder, composed of about one of phosphorus, and 6.8 of chlorine by weight, and which he calls *phosphorana;* the other is a fluid as clear as water, and its specific gravity is 1.450: he calls it *phosphorane.*

(7) Phosphorus will combine with all the metals except gold and zinc. It unites with iron, and forms that kind of iron called *cold-short.* Iron of such property acquired this name on account of its being very brittle when cold, though malleable when heated. Such iron may, however, be made good and fit for most purposes, by heating it with carbonate of lime. (*Annales de Chimie*, tome xlii. page 832.)

(8) Several species of animals have the property of emitting light. The light of the glow-worm is well known, but the *Pyrosoma atlanticum* has not been described by naturalists. M. Peron, on his voyage from Europe to the Isle of France, observed this animal between three and four degrees north latitude. Its phosphorescent quality, (as it has been called,) so truly prodigious, renders it one of the most beautiful of all known zoophites, and its organization ranks it amongst the most singular. The darkness was intense when it was first discovered; the wind blew with violence, and the progress of the vessel was rapid. All at once there appeared at some distance, as it were a vast sheet of phosphorus floating on the waves; and it occupied a great space before the vessel. The vessel having passed through this inflamed part of the sea, the crew discovered that this prodigious light was entirely occasioned by an immense number of small animals, which swam at different depths, and appeared to assume various forms. Those which were deepest looked like great red-hot cannon balls; whilst those on the surface resembled cylinders of red-hot iron. Some of them were soon caught, and were found to vary in size from three to seven inches. All the exterior surface of the animal was bristled with thick oblong tubercles, shining like so many diamonds; and these seemed to be the principal seat of its wonderful powers of emitting light. In the inside also there appeared a multitude of little oblong narrow glands, which possessed the same virtue in a high degree. The colour of these animals, when in repose, is an opal yellow mixed with green; but on the slight movement of those spontaneous contractions which it exercises, or those which the observer can at pleasure cause by the least irritation, the animal inflames, and becomes instantly like red-hot iron, and of a most brilliant brightness. As it loses its phosphorescence, (if this property be phosphorescent,) it passes through a number of tints successively, which are extremely agreeable, light, and varied; such as red, aurora, orange, green, and azure blue: this last shade is particularly lively and pure. A further account of this curious creature may be seen in one of the early volumes of the *Journal de Physique.*

(9) The compound formed by the union of carbon and nitrogen, is known by the name of prussic gas. It was discovered by Gay Lussac, and by him called *cyanogen.* It is obtained from prussiate of mercury by distillation. It is a permanent gas, very inflammable, and nearly twice as heavy as atmospheric air. It affects the nostrils violently when inhaled by them.

(10) Messrs. Allen and Pepys have lately shown that charcoal ought not to be considered as an *oxide of carbon;* for that, when well prepared, it requires as much oxygen for its combustion as the diamond; and that diamond, and all pure carbonaceous substances, differ generally from each other only in the state of aggregation of their particles. (See *Philosophical Transactions* for 1807, part ii. page 267.)

(11) Charcoal, for common purposes, is made by a less expensive process. The wood is disposed in heaps regularly arranged, and covered with earth, so as to prevent the access of any more air than is absolutely necessary to support the fire, which is kept up until all the water and oil are driven off; after which the fire is extinguished, by shutting up all the air-holes. A more economical method is first to collect the pyroligneous acid from the wood, by dry distillation in large iron cylinders; and then the residuum in the cylinder will be charcoal of the best quality. By this process, His Majesty's gunpowder works have for some time past been supplied with charcoal.

(12) Charcoal is so porous that it may be seen through with a microscope; and, however large the piece, it may be readily blown through.

(13) "All sorts of glass vessels and other utensils may be purified from long retained smells of every kind, in the easiest and most perfect manner, by well rinsing them out with charcoal powder, after the grosser impurities have been scoured off with sand and potash. Putrid water is immediately deprived of its offensive smell by charcoal." (See Crell's *Journal*, vol. ii. page 170.)

Meat which is only a little tainted with putridity, may at once be made sweet by charcoal; and if common raw spirits be agitated with charcoal, they will be deprived of their bad flavour. A gentlemen in the spirit trade, however, informs me that spirits treated in this way are very apt to resume the old flavour, if kept in the cask only a few months.

(14) Charcoal, from its affinity with oxygen, will decompose the sulphuric and nitric acids. It decomposes the latter with great rapidity. If the charcoal be dry and finely powdered, and the acid strong, and allowed to run down the inner side of the vessel to mix with the charcoal, it will burn rapidly, giving out a beautiful flame, and throwing up the powder so as to resemble a brilliant fire-work.

(15) "The beams of the theatre at Herculaneum were converted into charcoal by the lava which overflowed that city; and during the lapse of seventeen hundred years, the charcoal has remained as entire as if it had been formed but yesterday, and it will probably continue so to the end of the world. The incorruptibily of charcoal was known in the most ancient times; the famous temple at Ephesus was built upon wooden piles, which had been charred on the outside to preserve them." (See Watson's *Chemical Essays*, vol. iii. page 48.)

"It is said that there still exists charcoal made of corn in the days of Cæsar, which is in so complete a state that the wheat may be distinguished from the rye." (Willich.)

"About forty years ago, a quantity of oak stakes were found in the bed of the Thames, in the very spot where Tacitus says that the Britons fixed a vast number of such stakes, to prevent the passage of Julius Cæsar and his army. They were *charred* to a considerable depth, retained their form completely, and were firm at the heart." (Dr. Robinson's *Introduction to Black's Lectures.*) The ancients wrote with levigated charcoal, the most indestructible substance we know of; and accordingly, the writings found in Herculaneum are still a perfect black. (Ib. vol. ii. page 480.)

Casks charred in the the inside are now used to preserve water in sea voyages; and such casks are found to preserve toe water uncorrupted. (Dr. Black's *Chemical Lectures*, vol. ii. page (285.

(16.) Charcoal is used by mathematical instrument-makers and engravers to polish their brass and copper plates. Plates of horn and lantern leaves are polished with it. It is also much used by artists in tracing the outlines of drawings.

(17.) Messrs. Allen and Pepys have lately determined by experiment that charcoal properly prepared contains no sensible quantity of hydrogen, but that it absorbs moisture if exposed to the air only a few hours, which renders the result of the analysis uncertain.

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*Moneys received between the 20th of Sept. and 24th October, in sums of $5 and over. The total receipts are included from post-offices marked with an asterisk.**

	No. Vols.			No. Vols.	
*Alexandria,	D.C	53	*Northampton,	Mass.	31
*Auburn,	N.Y.	8	Norwich,	N.Y.	15
*Boston,	Mass.	180	*Philadelphia,	Pa.	163
*Bowling-Green,	Ky.	27	Pikesville,	Md.	6
*Burlington,	Vt.	27	*Poughkeepsie,	N.Y.	27
Chatham,	N.J.	5	*Providence,	R.I.	19
Clifton Factory,	Md.	5	*Rising Sun,	Md.	7
Dubuquee,	Io.T.	5	*Salem,	Ia.	21
*Greensborough,	Ga.	39	Salisbury,	N.C	6
*Hagerstown,	Md.	25	Sherbrooke,	L.C.	16
*Hartford,	Ct.	62	*Sing-Sing,	N.Y.	27
*Johnson's Springs,	Va.	49	Springfield,	Mich.	5
*Knoxville,	Tenn.	24	St. Catherine's,	U.C.	5
*Lexington,	Ky.	34	*St. Louis,	Mo.	70
*Lexington,	Va.	24	*Uniontown,	Md.	15
*McNary's,	Ky.	13	Urbana,	O.	5
Milwaukie,	W.T	7	*Utica,	N.Y.	36
*Newbern,	Va.	14	*Vergennes,	Vt.	22
*New-Brunswick,	N.J.	33	Vickburgh,	Miss.	11
*New-York city,	N.Y.	291	Wilbraham,	Mass.	17

PRICE CURRENT.

ARTICLES.	New-York, Oct. 21.	Boston. Oct. 19.	Philadelphia. Oct. 17.	Baltimore, Oct. 21.
Beans, white, per bushel,......	2 12— 2 25	1 62— 2 25	1 75— 1 87	1 80— 1 90
Beef, per cwt..............	....	7 00— 8 50	7 00— 9 00	7 25— 7 75
Bacon, western, per lb.........	0 12— 0 13	0 12— 0 12	7 50— 8 00	7 50— 0 12
Butter, fresh, per lb...........	0 18— 0 20	0 20— 0 23	0 14— 0 16	0 15— 0 20
Cheese, per lb................	0 08— 0 10	0 10— 0 12	0 10— 0 11	0 10— 0 17
Cotton, best per lb............	0 10— 0 14	0 11— 0 16	0 13— 0 16	0 14— 0 15
Flour, best, per barrel, ...	6 00— 6 75	6 50— 6 87	6 50— 6 25	6 00— 6 25
GRAIN—Wheat, per bushel,....	1 32— 1 33	1 28— 1 33	1 25— 1 30	1 20— 1 32
Rye, per bushel,......	0 76— 0 85	0 88— 0 90	0 70— 0 83	0 70— 0 73
Oats, per bushel,......	0 38— 0 43	0 45— 0 37	0 34— 0 40	0 33— 0 34
Corn, per bushel, ...	0 78— 0 80	0 76— 0 86	0 68— 0 75	0 72— 0 73
Hams, pork, per lb............	0 10— 0 13	0 10— 0 11	0 09— 0 11	0 08—13 50
Pork, in hog, per cwt..........	....	6 50— 7 50	7 00— 8 00	9 00— 9 50
SEEDS—Red Clover, per bushel,	....	8 00—12 00	....	12 00—13 00
Timothy, per bushel,..	....	2 00— 2 75	....	2 00— 2 50
WOOL—Saxony, fleece, per lb..	0 50— 0 55	0 58— 0 62	0 55— 0 60	....
Merino, per lb........	0 45— 0 50	0 55— 0 60	0 50— 0 55	....
¼ and common, per lb..	0 30— 0 38	0 45— 0 48	0 37— 0 50	....
Sheep, per head,....	2 00— 5 50	1 25— 3 25	2 50— 3 60	1 50— 3 25
Cows and Calves, each, ...	23 00—30 00	30 00—60 00	23 00—33 00	....

MORUS MULTICAULIS AND OTHER MULBERRIES, &c.—The subscriber is now ready to receive orders to any reasonable amount, for trees of the Morus Multicaulis, or cuttings of the same. The trees are genuine, all being raised by the subscriber, either at his nursery here, or at his *Southern establishment at Portsmouth, in Lower Virginia.* Also, the Elata, Broussa, Canton and Moretti or Alpine, &c.

The collection of Fruits is of the most celebrated kinds. The catalogue of *Fruit and Ornamental Trees and Shrubs, Roses and Herbaceous Plants, for* 1839, is ready, and will be sent to all who apply. In that catalogue, the very best kinds of fruits, so far as proved, are particularly designated by a *star*. All orders will be promptly attended to: and trees, when so ordered, are securely packed for safe transportation. Nonantum Hill, Newton, Mass. 7th October, 1839.

1 jan. WILLIAM KENRICK.

FARM & COUNTRY RESIDENCE FOR SALE, a very desirable Farm and family residence, most conveniently located, in a dry, airy and healthy situation, eight miles from Baltimore, half a mile from the Philadelphia turnpike, (one of the best roads in Maryland,) and the same from the post-office at Rossville, and Depot on the rail-road from Baltimore to Philadelphia, at Stemmer's Run. It contains 90 acres, of which about 30 are in wood, and the remainder partly in clover and timothy and natural meadow, and partly arable land, easy of cultivation, and kind for the production of all farm produce, fruits, vines and vegetables. The improvements consist of a new and excellent two story frame house, comprising a spacious hall and two parlours with folding doors, on the ground floor, and six good bed-rooms above, and large dry cellar under the whole. Also, a comfortable log-house, with cellar underneath, and buildings adjoining suitable for kitchen and servants' quarters, and a spacious Barn, Stable, &c. detached; a well with pump and springs of good water, and a fine young thriving apple orchard of 250 grafted trees, of the best kinds, some of which are now in bearing, and a few Peach, Pear, Plum and other fruit trees; the whole together forming a most eligible property, rarely to be met with. Possession may be had as soon as required, and for price (which will be low,) and other particulars, apply personally or by letter, (post-paid,) to Dr. C. STREATER, Rossville, Baltimore county, Maryland. nov.1t

POUDRETTE and URATE—AMENDED DIRECTIONS FOR THEIR USE—(For previous directions, see Cultivator, vol. vi. No. 3, p. 60.) Poudrette *is not* dissolved in water, before being used as is Urate, but is to be used in a dry state, or by mixing it with dry soil in hills or drills, or sown in broadcast on the land, as you would lime or ashes. Experiments in this country, thus far, have proved the following methods as the most advisable in its application.

For Corn—After the furrows have been struck, sprinkle in the place where the hill is to be, before planting, a handful of Poudrette, equal to about a gill, then deposite the corn, (*double that quantity of Poudrette has destroyed corn*, and burned it up,) then cover up the corn and press the earth down over it with the foot or hoe.

For Potatoes—The same quantity, namely, a handful or gill may be used very advantageously; and it has so happened, that when the quantity was increased nearly double, no injury resulted, but rather improved the potatoes, a large handful, however, is sufficient.

Compost—It is worse than useless to attempt to make compost by mixing Urate or Poudrette with any thing but dry soil: if mixed with other manures, they operate on the other manures until those manures are consumed, before they are beneficial to plants; and in some instances it may be, that the result of the Urate and Poudrette in the *first* year of their *first* application, will not be as satisfactory to the farmer as he will think he had a right to expect: this arises from the fact that the land contains a considerable quantity of some former manure, upon which the Urate and Poudrette will first act: at the very next season, however, the farmer will find a crop far superior to his expectation, provided he will put no new manure of any description to the land lately manured with urate or poudrette. This, however, must be further explained by saying, that it applies to manure placed or dunged in the hill, or where the land is in a high state of cultivation, from having been highly manured in broadcast, which would give the poudrette an opportunity of feeding upon or consuming it. Experience has proved, this year, that where there was a moderate application of lime or barn-yard manure applied to the land in broadcast, it did not appear to affect the influence of the poudrette on the crop.

The quantity of poudrette must vary from 15 to 35 bushels per acre, according to the quality of the land, and the crop cultivated; less than 15 bushels to the acre may not be very satisfactory, and more than 35 is useless. On Long-Island, the following has been adopted by a practical farmer with success, viz.—For wheat, 40 bushels of poudrette per acre; rye 25 bushels; oats 20 bushels; buckwheat 15 bushels; Indian corn one gill in the hill.

Urate and Poudrette are light substances, and liable to be blown off the ground by high winds, if sowed on the surface when the ground is not damp; therefore, it is considered best to sow the grain and harrow the land once, and then sow the manure in broadcast and cross harrow the land the 2d time.

The difference of the season, between spring and autumn, and the state of the atmosphere, are to be considered before using either urate or poudrette; damp weather is always to be preferred. Neither of them contain any seed of weeds of any description. An application of 35 bushels to the acre of urate or poudrette once in every three years is sufficient.

Urate and poudrette may be sent to any part of the country in barrels or bags—barrels are to be preferred when it is liable to get wet. Orders may be given, post-paid, directed to "*The New-York Urate and Poudrette Company*," box No. 1211, post-office, New-York.

The urate and poudrette made by this company, is not confined to distribution among its stockholders only, and therefore farmers and gardeners may expect a supply in the order in which their application is made, without any condition of becoming a stockholder, or advancing any more money than may be sufficient to purchase what they need.

Price of the Urate 50 cents and Poudrette 40 cents per bushel, with contingent charges for bags or barrels, &c. 1t

DURHAM AND DEVONSHIRE CATTLE and SAXONY SHEEP, for sale by the subscriber.

1. The Bull *Memnon*, from the herd of F. Rotch, Esq. of Butternuts, N. Y. Pedigree No. 2,297, English Herd Book.

2. A four years old full blood Cow, a beautiful specimen of the Devonshire and Durham cross, with her calf, a heifer, six months old, by Memnon.

3. A bull calf, two and a half months old, by Memnon, dam Experiment.

4. From 70 to 80 Ewes, 40 to 50 Lambs, and 30 Rams, from my flock of full blood Electoral Saxon Sheep, selected by myself from the purest race in Saxony. H. D. GROVE,

oct.1t Buskirk's Bridge P. O. Wash. co. N. Y.

FOR SALE—TWO SOUTH-DOWN BUCK LAMBS.—The subscriber imported, in the fall of 1837, two ewes and a buck, selected from the Earl of Leicester's flock, (Holkham,) of which the above is the progeny. Near Dobb's Ferry, Pa. July 23, 1839.

Sept-tf JAMES A. HAMILTON.

SOUTH-DOWN BUCKS.—Two two year old very superior South Down Bucks, clothed with fine wool and long enough for combing, were imported last April, direct from England, from the flock of the late John Ellman, Esq. of Glynde, near Lewes, Sussex, and are for sale at one hundred dollars each, or to be let for the season at fifty dollars each, by the personal friend of the breeder.

OBADIAH ELLIOT.

Elizabethtown, N. J. Aug. 20, 1839. s3t

☞ The Genesee Farmer and Farmers' Cabinet, will give the above two insertions, and send bill to advertiser.

BERKSHIRE PIGS.—The subscribers are ready to receive orders for their fall litters of Berkshire Pigs.—Several of their sows will come in from the 25th of August to the 5th of September. Orders for the south can be sent to New-York every day in the week, (Sundays excepted,) and reshipped by a faithful person, without charge, except for freight to, or cartage in, New-York. Orders or letters of inquiry, *post-paid*, will receive immediate attention.

sept-2t. H. & J. CARPENTER, Norwich, Con.

IMPORTED CATTLE—BERKSHIRE PIGS.—The subscriber intending to return to England, offers for sale his stock of Imported Durham Short Horned Cattle and Berkshire Pigs, at his residence, English neighborhood, Bergen county New-Jersey, five miles from New-York. The stock consists of 15 head of milking cows, 1 two-year old heifer, 4 one-year old heifers, and from 8 to 10 spring calves. Four of the above cows are imported, and the remainder are got by the imported Herd-Book Bulls Dishley, Durham, Wye-Comet, Hall's Comet, Memnon, Admiral, Denton, &c.

BERKSHIRE PIGS.—Ten breeding Sows, in pig and with pigs by them at the present time; from 40 to 50 Pigs ready for delivery at any time, at prices from $10 to $20 per pair, delivered in New-York.

The imported Herd-Book bred bull Bloomsbury is with the Cows for the season, and from present appearance will soon all be in calf. The yearlings and spring calves are all by my bull Snow-Ball, late Minevis, by Wye-Comet, dam Nelle, bred by Israel Munson, Esq. of Boston, got by the imported bull Admiral; grand-dam Rosa, bred by Mr. Munson, by the imported bull Denton, owned by Stephen Williams, of Northborough, Mass.: great-grand-dam Tuberose, bred by Mr. Wetherall, and imported by Mr. Munson.

For further particulars, see Herd-Book; Dishley, page 63; Durham, page 567; Wye-Comet, page 200; Admiral, page 2; Denton, page 43; Tuberose, page 524.

BENJAMIN BRENTNALL, English neighborhood,

sept-3t. Bergen co. N. J. 5 miles from N. Y.

FOR SALE—The subscriber wishing to close up his business, offers for sale the valuable Iron and Lumber Establishment, formerly owned and occupied by Penfield & Taft, situated on Putts creek, six miles from Lake Champlain, in Crown Point, Essex co. N. Y. The premises in question consist of a valuable water power, with a fall of more than 100 feet within sixty rods; on which there is now in operation a Grist-Mill with three run of stones, propelled by an overshot wheel; two Saw-Mills, one with overshot wheel and double gear, all nearly new and in good order; a Forge with two fires; and a machine shop for pounding and separating ore. The water for propelling these works is held in reserve by four ponds or reservoirs on the premises; the upper one being about 2¼ miles in length, forming an ample reservoir for the whole works below, and affording sufficient water in itself for driving a forge with four fires and a rolling mill.

Adjoining the works are **600** acres of land, one-fourth of which is under good cultivation; on which are five dwelling-houses, convenient barns and out-houses, a store, blacksmith shop, and buildings convenient for other purposes.

There is also **1,000** acres of fine timbered land lying two or three miles from the above described works. Also, about five miles distant are **800** acres fine timbered land, on which are two Saw-Mills, and one of the richest, most extensive and valuable beds of iron ore yet found in the U. States.

Also, **1,900** acres of land in the towns of Schroon and West Moriah, Essex co. the greater part of which is covered with pine timber; 100 acres of which is under good culture, and on which is a good saw-mill, blacksmith shop, several dwelling-houses, barns and out-houses.

Also, one-half of a farm of 130 acres, situate on Lake Champlain, near the mouth of Putts creek, 23ds of it under good improvement; on which there is a large and convenient wharf.

On examining the above described premises, they will be found to combine unparalleled advantages for prosecuting an extensive business in the manufacture of lumber and iron, and for the sale of ore.

Such parts or parcels of the premises as are necessary for prosecuting the manufacture of iron and the sale of ore, will be disposed of separately from, or in connexion with, the lumbering establishment, as may suit the purchaser.

For the terms of sale, and all further particulars, inquire of the subscriber on the premises. ALLEN PENFIELD.

ROHAN POTATOES.—Orders received for Rohan Potatoes, at $5 per Barrel, to be forwarded, as may be directed, without delay, by J. BUEL. tf

ROHAN POTATOES.—The subscriber is now prepared to furnish the above very valuable root for transportation, at $5 pr. bbl. until the 1st Nov. delivered at Albany. Persons living at a distance, will find it to their interest to forward their orders early, so they will reach their destination before cold weather sets in. Orders enclosing five dollars, (postage paid) or more, will meet with immediate attention.

CALEB N. BEMENT.

Three-Hills Farm, Albany, Oct. 1st, 1839.–3t

MULBERRY TREES.—25,000 Multicaulis, Alpine and Expansa Mulberry trees, and a few thousand Silk Worms Eggs, for sale by S. E. GIBBS & SON, West end of Long-Island.

Address them at Brooklyn. October, 1839. 3t.

MORUS MULTICAULIS.—25,000 trees for sale, either in quantities or all together, and to be delivered at any time that may best suit the purchaser. They are from imported cuttings, of the genuine Morus Multicaulis, were planted in May last, and are of the most vigorous growth, measuring from three to five feet in heighth, with large collateral branches. Purchasers are invited to call and see them, at the residence of Gen. Morgan Lewis, Staatsburgh, Dutchess county, state of New-York, where the owner lives, as he thinks they will not suffer by a comparison, with any in the United States. Staatsburgh, Dutchess co. Sept. 11, 1839. [oct. 4t] MATURIN LIVINGSTON.

MULBERRY TREES.—A few thousand Mulberry Trees are for sale at the Albany Nursery. They consist of the Multicaulis, Brussa, Chinese, that is, the product of Chinese seed, and the common white. The prices will depend upon size and quality. The Brussa is more hardy than the common, and the Chinese about as hardy; and the three kinds are believed to be equal, if not superior, to the Multicaulis, for silk; though it is proper to add, none of the mulberries that we have tried are propagated with so much facility, from buds and cuttings, as the multicaulis. The prices will be conformed to the average market price. tf

ALBANY NURSERY.—This establishment now offers perhaps the best collection of Pears now in the country; [see the June number of the Cultivator.] Also, Apples, Peaches, Plums, Ornamental Trees, Green-House Plants, &c. &c. A catalogue will soon be printed, and forwarded to order. Address J. BUEL & Co. post-paid. tf

THE SUBSCRIBER has located in Albany, where he is manufacturing his machines for thrashing and cleaning grain. He may be found at **53** North-Market-st. or at his machine shop on Patroon's Creek, near the Manor House. Sept. 2, 1839. [oct. 3t] JOHN A. PITTS.

ALBANY SEED STORE, GARDEN and AGRICULTURAL SEEDS, IMPLEMENTS, TOOLS, &c. kept constantly for sale at his Seed Store, 317 North Market-street, wholesale and retail, consisting of a large assortment. It is the intention of the proprietor to test all seeds of which there is any doubt respecting their vitality, by sowing a few seeds in a small pot, before offering them for sale. And purchasers can test for themselves, any seeds of which they are distrustful, by sowing a few in a box of fine earth, and placing it in a warm room, exposed to the sun, where, if kept moist, the seed, if good, will vegetate in a reasonable time. In all cases where seeds prove to be bad, they will be replaced by others, or any reasonable satisfaction made. The proprietor has enlarged his establishment and increased his supplies, and with his experience in the business, together with his facilities for obtaining supplies, through Mr. GEORGE C. THORBURN, and his extensive correspondence and facilities for obtaining seeds, he flatters himself he will be able fully to meet the wishes and expectations of the public, and make the *ALBANY SEED STORE and AGRICULTURAL REPOSITORY* worthy of the high character it has already attained.

Persons ordering Seeds and Implements from a distance, with whom I am unacquainted, without remitting payment, are expected to give references in this city or New-York.

Sept-tf WILLIAM THORBURN.

FOR SALE—A Splendid Country Seat in the Highlands, on the Hudson River. That beautiful country residence, known by the name of the BEVERLY ESTATE, containing four hundred acres of land, about two hundred of which are fine level arable soil, of an excellent quality, in a good state of cultivation, and not surpassed by any on the river for fertility; the remainder is fine and thrifty timber land. The situation is the most eligible on the Hudson, extending one mile and a half on the river, with a bold shore and convenient dock, nearly opposite West-Point, and within fifty miles of New-York. The prospect is extensive and diversified, reaching from St. Anthony's Peak on the south, to the bay and city of Newburgh on the north. This estate can conveniently be divided into three farms, giving an equal proportion of front on the river, and of arable and timber land to each. Almost every enclosure is supplied with living springs of the purest water. There is on said estate a plain house, (formerly the head-quarters of Gen. Arnold;) also out-houses necessary to carry on the business of the farm. The single fact that during the whole time the cholera raged throughout the state not one case occurred within ten miles of this place, is sufficient to prove the unrivalled salubrity of the situation. The facilities of intercourse with the city, that can be reached in four hours, by means of numerous steam-boats, are great, and daily increasing, both as regards pleasure, and the convenience of a near market for produce of every description.

For conditions of sale, apply to STEPHEN A. HALSEY, 139 Water-street, New-York, or RICHARD D. ARDEN, on the adjoining farm. Ardenia, 23d April, 1839. j6t

FROM THE STEAM PRESS OF
PACKARD, VAN BENTHUYSEN & Co.
No. 403½ South-Market-st. (up stairs,) and No. 8 Liberty-st.,
ALBANY, N. Y.